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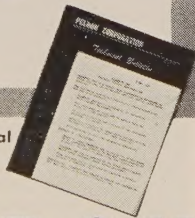
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Behind the Scenes...

More Production

STEEL, too, is increasing its production and trying to save on man-hours and costs. We just saw the new binder down in the press department. That's the machine that takes all the printed pages and makes them into a magazine.

The machine cost about \$100,000. Big reason for the investment is the substantial jump in circulation. The old unit used to turn out about 3000 magazines per hour—tops. The new one can hit the 5000-mark. Result is virtual elimination of need for overtime in the department.

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The complete book then goes on a conveyor to the trimmer for automatic sizing. Within minutes the copy is popped into the mail bag and is soon on its way to you.

Titled

In Washington, there's a chap who is an assistant to the boss of a department whose function is to handle the administrative work for a large government agency. Our man's title: Administrative assistant to the administrator in charge of administration.

The Humidity Helps

Associated Industries of Cleveland has just made a survey of the styles of office attire on these hot days. The results are discouraging. In Cleveland, at least, conservatism reigns.

In 28 out of 29 companies queried, top executives always wear the dress shirt rather than the sport shirt regardless of the weather. In most of the 29 companies all men in white-collar positions cling to conventional attire no matter what heights the humidity rises to. In one company even the women are required to wear stockings, hot or cold. A number of people interviewed said they would

be glad to follow the sport-shirt trend if someone else starts it.

Few companies, it seems, have formal rules on the subject. Custom governs. An occasional firm boasts some hardy individual in its ranks who wears sport clothes to the office, but even most of those have the conventional shirt hidden away in a desk drawer, to be put on in case of visitors or an unexpected call to a business lunch.

Full Information

We were talking with Assistant Editor Bob Hall the other day. He just got back from a trip through the East, where he had a slight scrape with the state police.

Bob was going faster than the signs ordered. At any rate he was asked to post bail and didn't have enough folding money to make it. He got permission to use a check after the patrolman had called the judge. When he got to Cleveland he assumed all was in order.

The mail, however, brought a postcard from the arresting officer. In a half-apologetic tone the gentleman wrote that he had failed to get the number of the operator's license and also the registration number of the car. It must have been the heat. No officer stopping us ever forgot a thing.

Puzzle Corner

The original quantity in the July 14 puzzle was 15. First in with that answer were J. W. Mecklenburg of Brasco Mfg., Blaine McKee of M. K. Mellott & Co. and George V. Frederick of Republic Steel Corp.

Here's a weighty one: A man pulls himself up the side of a building in a bos'n's chair. The man weighs 150 pounds. A single rope goes through a sheave which is attached to a horizontal beam. The beam will support 275 pounds. When opposite a fire escape, our man ties the rope to the railing. He then tries to climb from the chair to the fire escape, but the beam breaks and he falls to ground. We know why the man breaks his leg in the fall, but why did the beam break?

Shradu

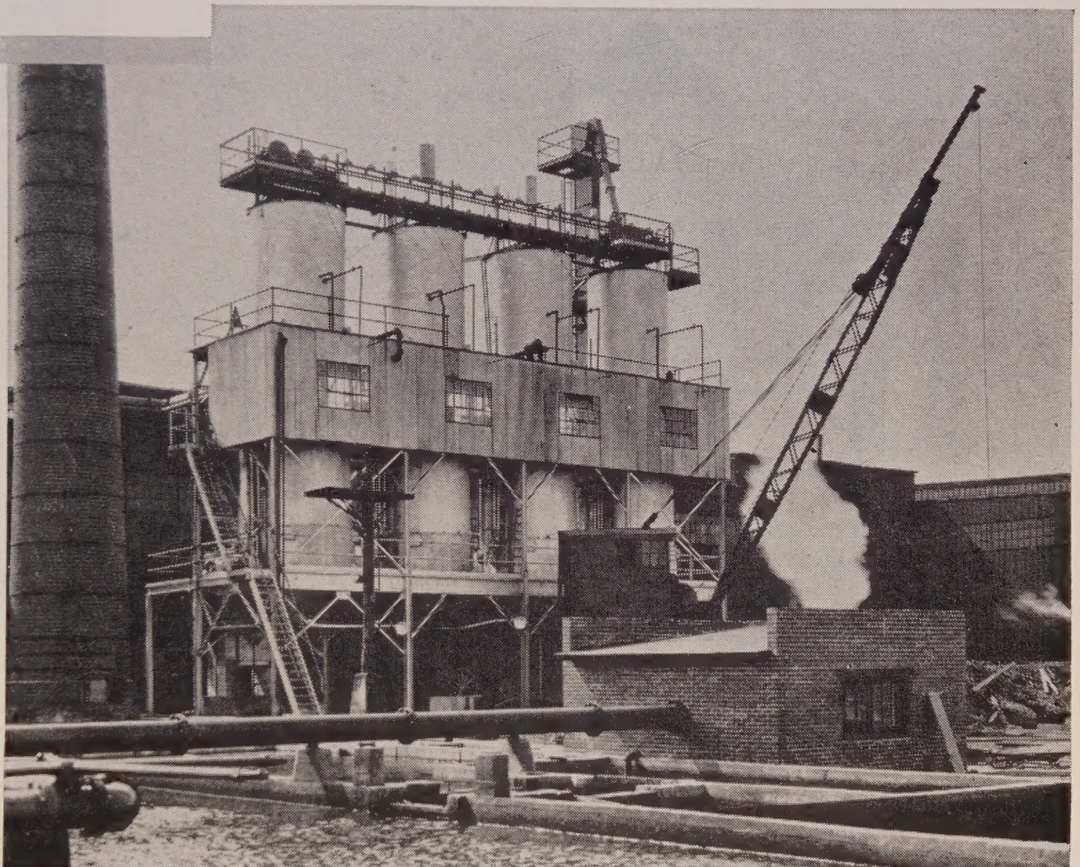
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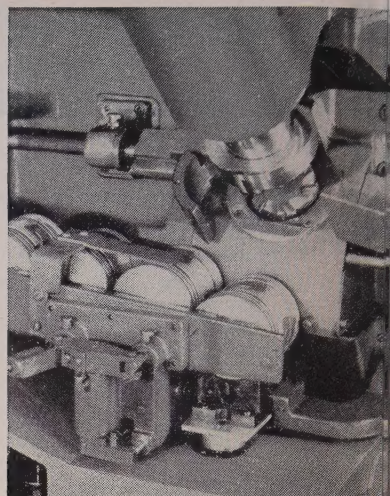
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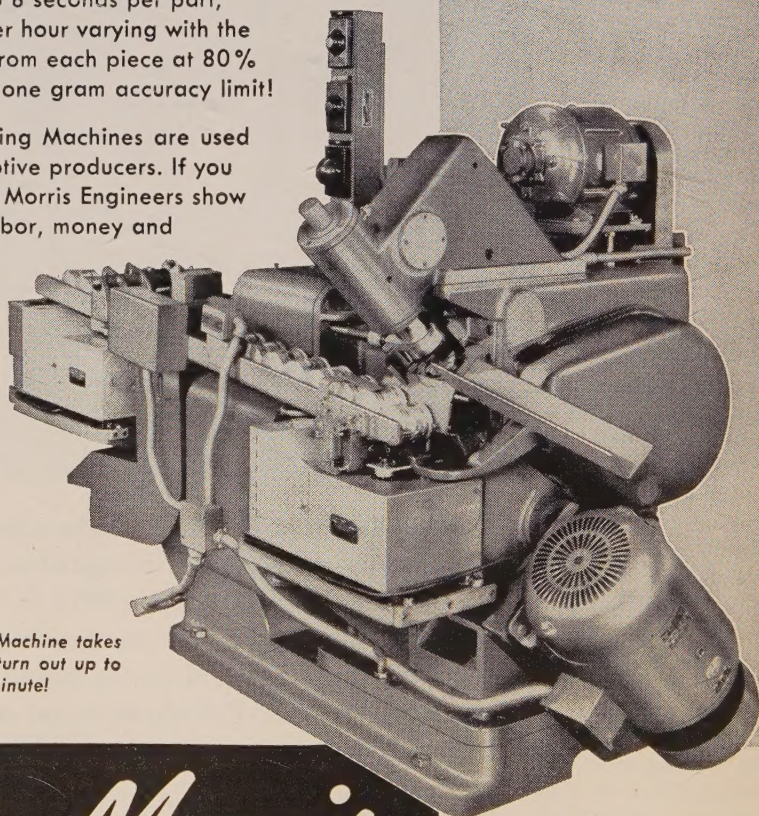
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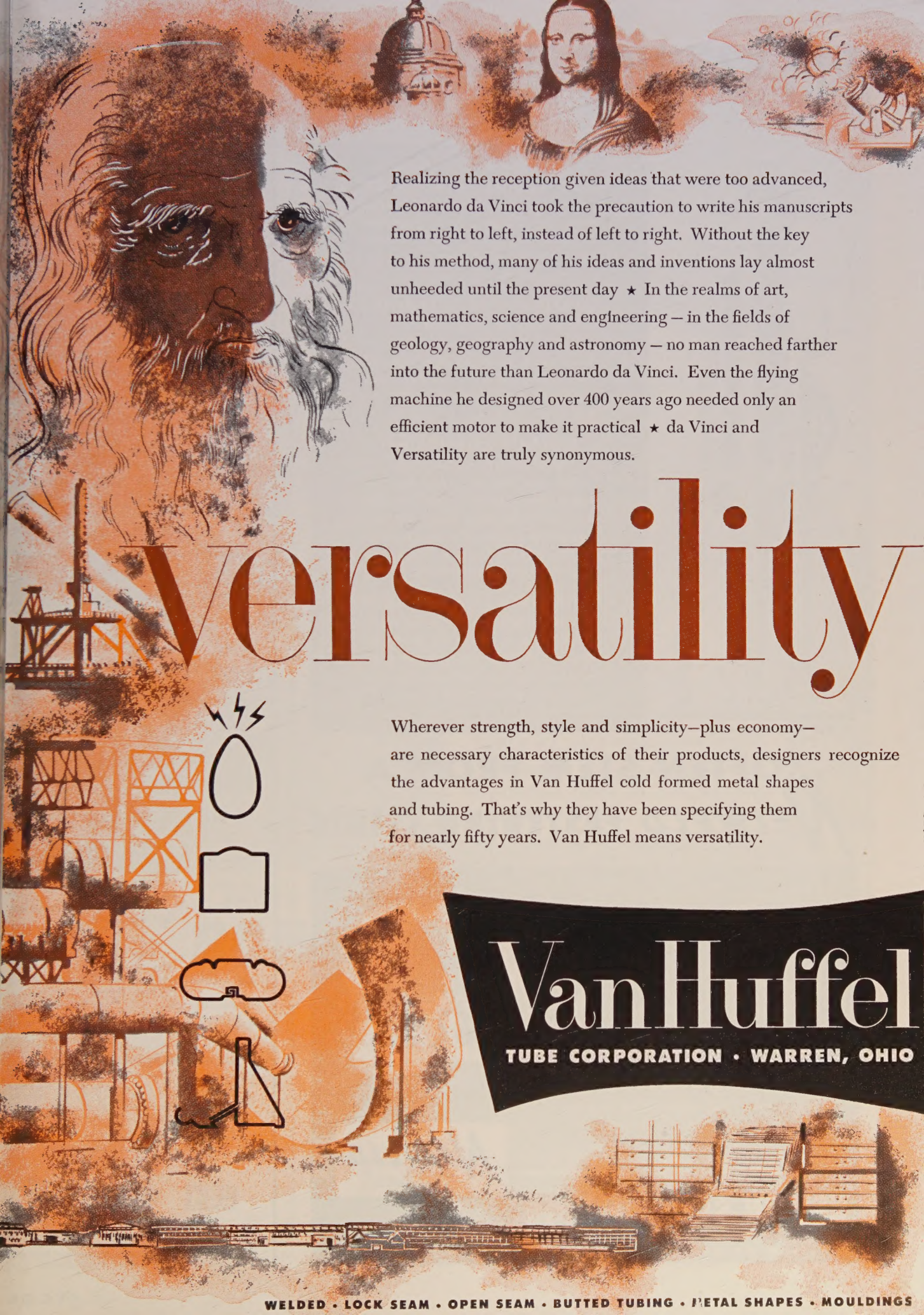
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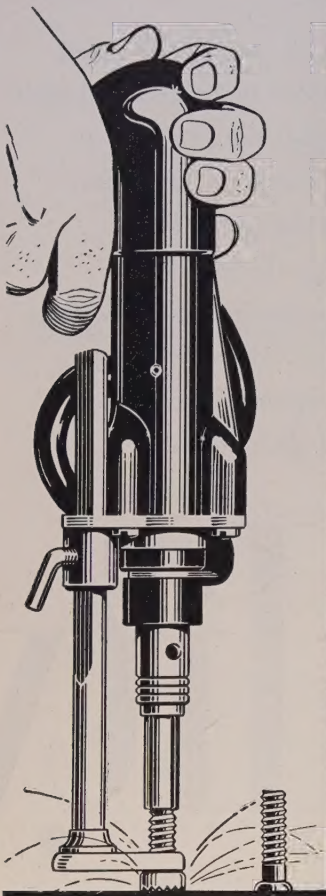
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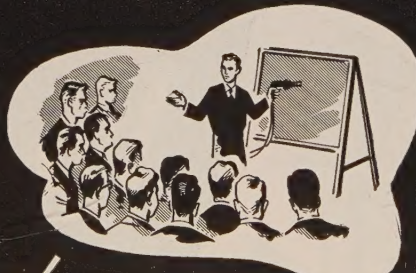
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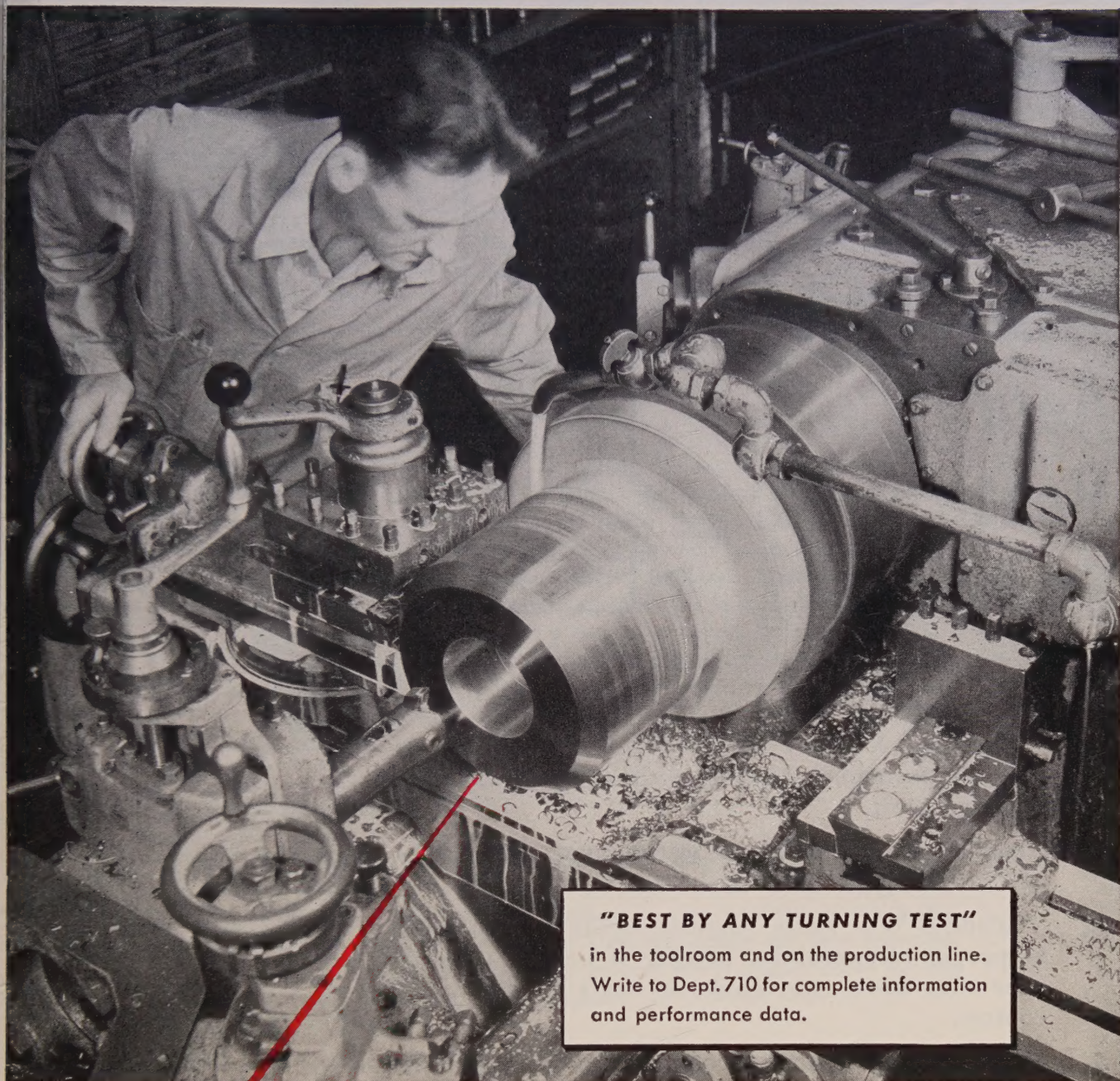
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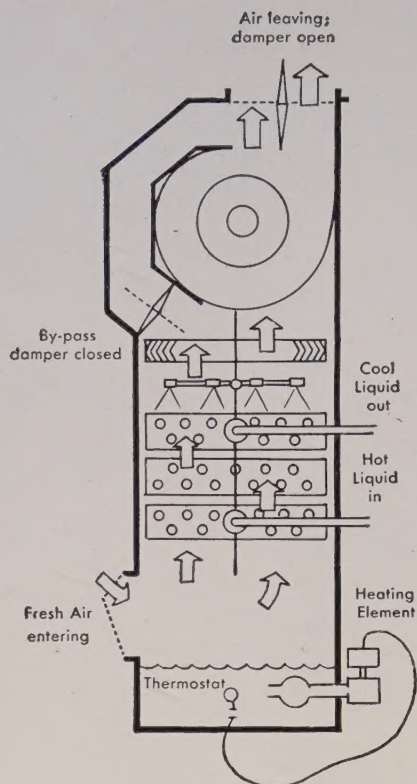
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LETTERS TO THE EDITORS

Big Steel: Demon or Defender?

It appears that some editors and writers are promulgating the idea that small manufacturers are pressing Big Steel to settle. I respectfully submit that small manufacturers, who know anything at all, are much more afraid of being ruined by "settlement" than by a refusal to settle on union terms.

1. Every small manufacturer who is using or making iron and steel products

knows that when the steel strike is settled, he will be subjected to union demands equaling whatever settlements may be made by the Big Six.

2. Small manufacturers know that they cannot obtain higher prices for their product — because the government won't permit higher ceilings and

because customers are becoming scarcer and are demanding lower prices.

3. With or without higher selling prices, smaller manufacturers see little hope of doing enough business continuously throughout the next twelve months to do more than cover the overhead if they succeed in that.

4. Small manufacturers have been robbed of financial resources by outrageous taxes and their own inadequate tax base.

5. The Big Six are the only factors of sufficient size and weight to protect the small manufacturers from the Murray-Truman combination.

(Name Withheld by Request.)

Right City, Wrong State

We would like to call your attention to an error in the location of Industrial Filtration Co. in your article "Proper Cutting Fluids can Step Up Machining" (June 23, p. 72). The Industrial Filtration Co. is located in Lebanon, Ind., not in Lebanon, Pa., as you credit it.

Drennan W. Hart
Drennan W. Hart & Co.
Indianapolis

Oscars from AiResearch

I feel you should be highly complimented for your very fine editorial "It's Your Fight Too," (May 26, p. 43).

I also feel that the executives of the Automatic Screw Machine Products Co., Chicago, deserve an "Oscar" for their farsightedness in teaching their employees the responsibilities of management through their Stock Award Program ("Making Partners," May 26, p. 43).

Otto C. Kiessig
AiResearch Mfg. Co.
Los Angeles

ment financing by iron and steel companies in 1951, some \$127.6 million by 44 other metalworking companies.

Defense Pools: Nearly Dry

The program whereby small companies pool their resources to get defense orders is a disappointment partly because the Armed Services are reluctant to deal with production pools. Small Defense Plants Administration is trying to break down the resistance and is making a special effort with the Air Force. Results of those special efforts thus far are not encouraging.

Because of Prices

The General Services Administration decision to buy 30,000 tons of lead outside the stockpiling procurement program doesn't mean inception of a policy of stockpiling for civilian industries, as reported in some quarters. The stockpile will be strictly for defense industries that conceivably might run short of lead over coming months. Now that the lead market is soft, GSA wants to accumulate a reserve at favorable prices. So far, the agency has bought 11,650 tons of the 30,000-ton goal.

Now Is the Time

If you're contemplating any large-scale hiring soon, now is a favorable time to do it, as far as labor availability is concerned. The Department of Labor says that a survey of 178 major industrial areas reveal that 153 have a balanced labor supply or a small labor surplus.

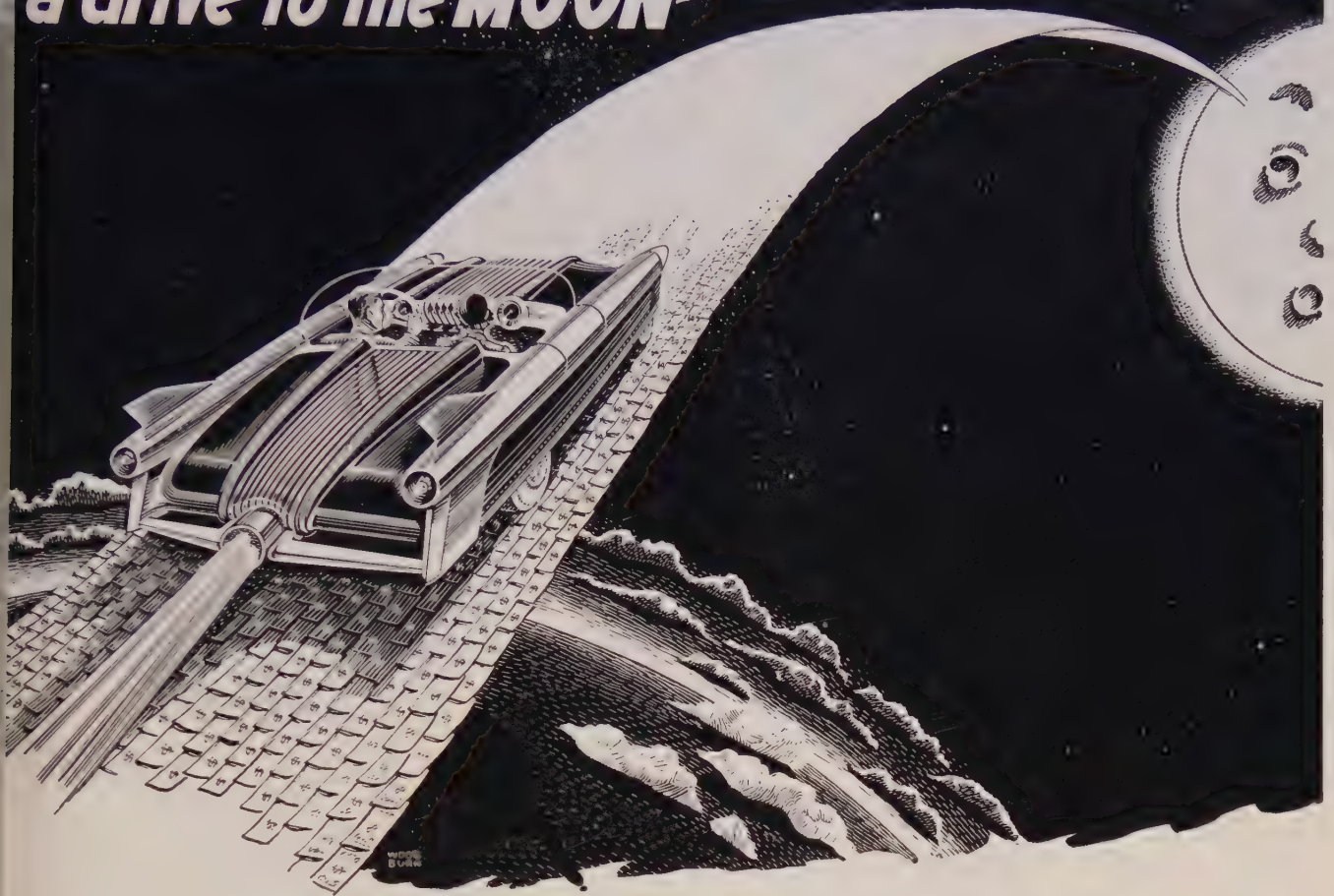
Straws in the Wind

Duties on scientific instruments and laboratory apparatus, at 36 per cent, are at their lowest point in recent years . . . Metalworking has spent or is now spending \$125 million on expansion in the Houston area . . . Kaiser Aluminum & Chemical Co. signed with the steelworkers . . . Atomic Energy Commission awarded a contract to Maxon Construction Co., Dayton, O. to build a \$464 million addition at Oak Ridge, Tenn., and a contract to F. H. McGraw & Co., Hartford, to build a \$459 million addition at Paducah, Ky. The Conference Board reports that a majority of 157 companies surveyed have recently initiated programs to increase sales effectiveness . . . Because of lack of funds, OPS will sharply curtail its activities, mostly by cutting down on field office operations.

What Industry Is Doing

Imports of foreign steel were not boosted much by the strike (p. 48) . . . Tin producers fight it out with a subcommittee of the Senate Committee on Armed Forces (p. 49) . . . Machine tool builders will be allowed to fill unrated orders soon (p. 50) . . . Trend toward more plant dispersal gains momentum (p. 51) . . . Vanadium Corp. of America breaks ground for a \$13.5 million aluminum and ferroalloy plant at Cambridge, O. (p. 49) . . . The government won a hollow victory by the extension of the Defense Production Act (p. 59).

a drive to the MOON-



On a road paved with YOUR Dollars

A road twenty feet wide, carpeted with one dollar bills, extending 256,471 miles through space to the moon,--illustrates the astronomical magnitude of our Federal debt.

1932 was a bad year for most of us, whether we were in business, or looking for a job, or going to school.

1952 seems much better to the majority of our citizens, with increased business, high wages and a good education for the children.

But how much better off, really, are those of us who think "we're in clover"? Consider our National debt which has skyrocketed from 19 billion dollars to over 260 billion dollars in the past twenty years.

Such a figure is difficult to grasp. But it represents your debt, the amount that you and your

family must pay. This debt is the obligation of every man, woman and child in the United States. The interest on this debt must be paid through taxes, and as the debt increases, the more our taxes will increase. If you have a wife and two children, your share of the Federal debt is now approximately \$7,000.

Your debt is now 13 times what it was in 1932, and they're planning right now, down in Washington, to inflate it even more.

Do you like it? Is that what you want? If you don't like it and don't want further expansion of our Federal debt, it's up to you to let Washington know. Only when American citizens are aroused and speak up, by electing able and patriotic men to public office, will there be an end to this orgy of public extravagance.



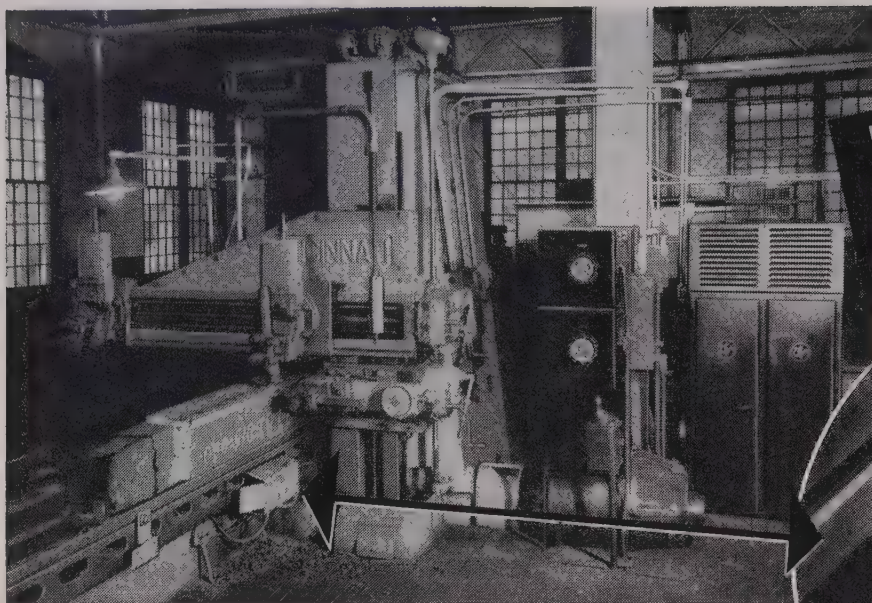
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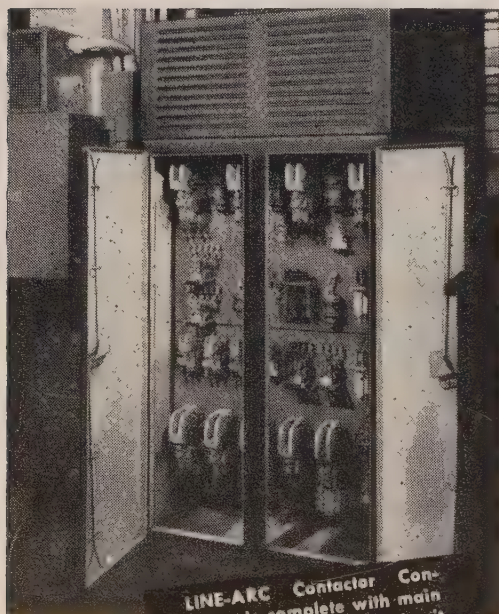


Note the air-gap between the operating-vane and the Limit Switch units. The planer has just finished a cut and will be automatically returned for another cut as this vane passes over the "return" limit switch face.



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CLEVELAND 4, OHIO



July 28, 1952

Too Much Power

Editors of this publication sent letters to hundreds of persons whose occupation was listed as "steelworker" in the Youngstown, O., city directory. One question asked in these letters was: "If the wage issues are satisfactorily settled, would you be in favor of continuing the strike in an effort to win the full union shop?" Of the replies received, 86 per cent were "no."

Equally enlightening as this overwhelming majority against the union shop are the unsolicited comments of steelworkers which were written on the returned letters. Typical are the following: "No closed shop—see Bill of Rights." "Not even the President of the United States has the complete say, why should Murray?" "To hell with the union shop; it is unconstitutional." "I was a union member once, but I found it very unfair."

These and many other comments indicate that a substantial number of members and ex-members of the steelworkers union was violently opposed to Mr. Murray's demand for the closed union shop. If his demand were granted by the steel companies, these workers who disagree with union policies would have to join or lose their jobs. As members they would be compelled to submit to union discipline, which would insist that every member think as the union chieftains dictate. No wonder one steelworker wrote "If the company agrees to the union demand for a closed union shop, they are as un-American as those who demand it!"

Not content to exercise "thought control" over union members, the union bosses last week attempted to force delegates to the Democratic convention to pledge allegiance in advance to any candidate or platform adopted by the majority, which consists of union leaders, left wingers and big city political bosses.

The parallel efforts of high union officials to impose the closed union shop upon employees and to place delegates of the Democratic party in the strait jacket of a blind loyalty oath constitute a serious threat to personal liberty. The arrogance displayed in both instances should arouse the American people to the realization that instead of granting union leaders more power, their present excessive power should be reduced.

EDITOR-IN-CHIEF

CONSTRUCTIVE PROGRAM:

A recent editorial on this page entitled "Lies About Business" elicited from a reader a letter in which he expressed the opinion that an

important factor in the average layman's distorted view of American business is the lack of adequate information about business on the part of the nation's educators. He was appalled by

the anti-business attitude of some of his college professor acquaintances.

Fortunately this problem has been recognized. Today there are a number of movements on foot which have the objective of providing educators with opportunities to become more familiar with the actual operation of businesses. One of these is typified by the "Economics in Action" program (p. 68) instituted by Case Institute of Technology. Case invited 50 economics teachers from 50 colleges to a six-weeks' course which includes field trips to industrial plants, opportunities to discuss problems with industrial executives and concentrated study of economics.

Programs of this kind are yielding encouraging results. They present an opportunity to enterprising industrial concerns to engage in constructive public relations.

* * *

SNAFU ON UNION SHOP: A fact that is frequently overlooked by proponents of the closed union shop is that it is banned by the laws of 13 states. These are (p. 48) Arizona, Arkansas, Florida, Georgia, Iowa, Nebraska, Nevada, North Carolina, North Dakota, South Dakota, Tennessee, Texas and Virginia. Also Alabama, Maine and New Hampshire have laws which limit compulsory union membership under certain conditions.

Only four of the 13 states named have basic steel capacity—Georgia, Tennessee, Texas and Virginia, but many of the others have capacity engaged in fabricating, finishing or other operations. Therefore, if an industry, such as steel, were to grant a full union shop to a nationwide union, the conflict between the union contract and state laws would immediately raise difficult questions. One result probably would be a fierce drive by both sides for changes in the laws of all industrial states.

* * *

FANTASTIC STATISTICS: Impact of the prolonged steel strike is reflected in current business statistics (p. 65), some of which border on the fantastic. As of last week, the nation had lost about 15.3 million net tons of steel ingots due to the strike. This exceeds the tonnage we have added to steel ingot capacity since the time of the attack on South Korea. In the week ended July 19, steel ingot production totaled only 318,000 net tons, or 15 per cent

of capacity. This compares with an output of 2,091,000 net tons, or 102.5 per cent of capacity, in the last full week before the strike occurred.

Automobile output in the week ended July 19 was down to 32,302 passenger cars and trucks, compared with 131,419 units in the comparable week a year ago. Freight car loadings and construction volume also are sharply lower. Electric power distributed is one of the few important indexes of activity which continues to show a gain.

Unfortunately, the situation is bound to get still worse before it can improve.

* * *

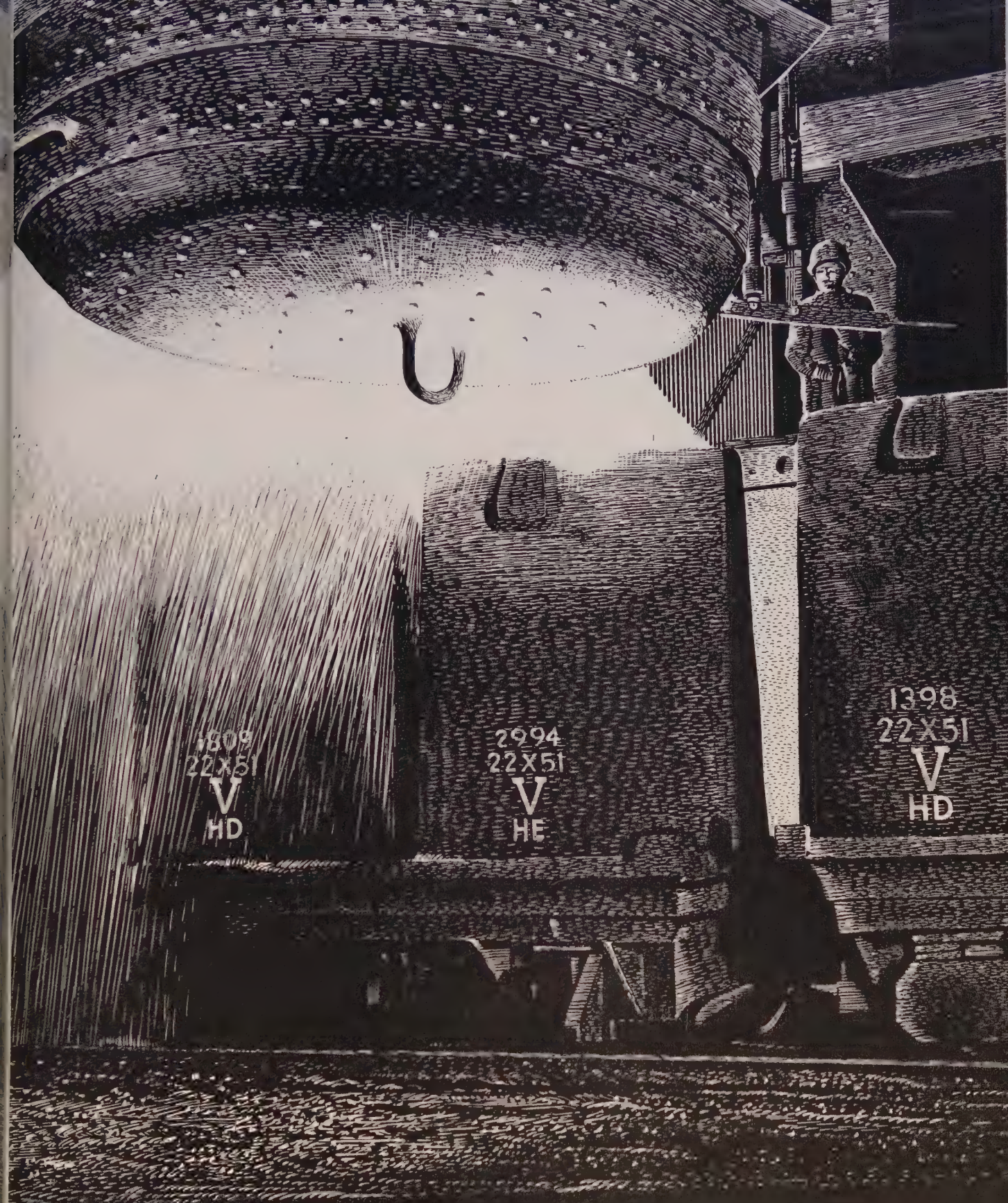
DISPERSAL IS NOT NEW: Any realistic appraisal of the program for encouraging the dispersal of industrial plants (p. 51) must take into account conditions which existed long before the threat of atomic bombing arose. For several decades such factors as congestion in cities, labor market, transportation, favorable living conditions and numerous others were causing the managements of industrial plants to seek more desirable locations. This tendency to pull up stakes in a long established industrial community and to move out into the country was firmly established decades ago. The city of Gary, Ind., is a good example and the steel facilities around which it was built were erected as long ago as 1908.

Dispersal is not new. What we are witnessing now is largely a continuation and a marked acceleration of an old and wholesome movement. The bomb threat is secondary to other considerations of long standing.

* * *

RECORD-BREAKING HEAT: A curious phenomenon of this summer period is that the really unusual siege of hot and humid weather is practically ignored in industrial news. One reads few if any reports of plants or offices being shut down even for short periods because of the torridity.

In June and thus far in July some sections of the central states have endured 25 days in which the temperature has exceeded 90 degrees. In these areas the number of days in which the thermometer registers 90 or above normally averages four for the entire summer season. Can it be that the idleness caused by the steel strike has reduced the emphasis on the weather in business news?

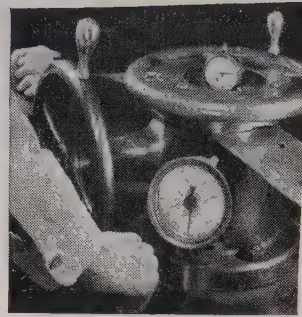
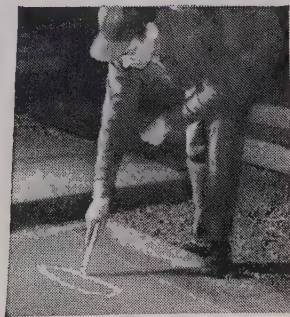


VALLEY MOULD AND IRON CORP.

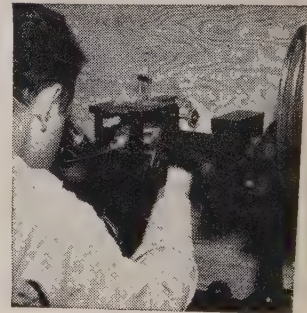
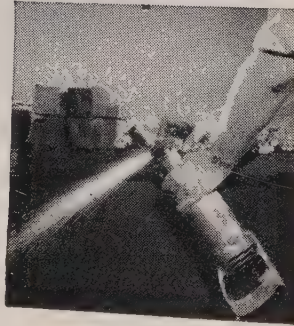
General Offices: HUBBARD, OHIO

Western Office: Chicago, Ill. • Northern Office: Cleveland, O.

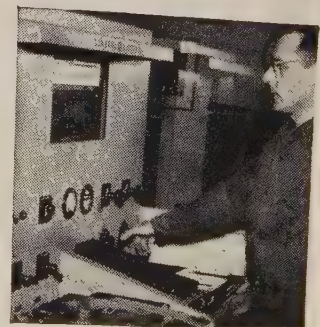
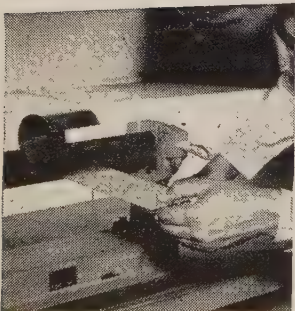
Our customers know that Inland



keeps steel quality consistently high..



These checks...made all through



production...demonstrate how.



INLAND STEEL COMPANY

38 South Dearborn Street, Chicago, 3, Illinois

UNION MEMBERS ON UNION SHOP . . .

The Constitution of the U.S.A. upholds freedom for men. How can a full union shop uphold the Constitution?

I hope the company never gives in to the full union shop demand if I never go back to work

This is America, not Russia

FAVOR THE UNION SHOP?

Definitely not!

We'd all go back to work if we had a secret vote

Let's keep this country free to work united without these so-called strikes by union heads who alone reap the harvest.

The union shop should not be granted in any form

Steelworker Poll

STEELWORKERS were overwhelmingly in favor of returning to work under a settlement based on the companies' latest offer. Only a handful favored continuing the strike to win full union shop.

That again was shown in the results of a second week of STEEL's poll of steelworkers in Youngstown and the Mahoning valley.

CUMULATIVE RETURNS:

Wanted to return on basis of companies' wage offer?

YES	NO
86%	14%

Wanted to continue the strike to win full union shop?

YES	NO
14%	86%

The Long Road Back

Months will be required to get steel flowing to consuming industries—defense and civilian—in prestrike pattern. Some losses never will be made up

THE STEEL strike is over after 53 days.

Settlement was for a wage hike amounting to 22 cents and a modified form of the union shop. Steel companies will get a \$5.20-a-ton increase on carbon grades.

Knotty Problem—The end of the strike means that big problems must be solved. The major one is how to distribute the available steel until things get caught up. Details won't be ready until today, but plans for distribution call for defense users to get special treatment

until the worst of their material problems are over. Defense Secretary Robert A. Lovett says it will take three to six months for the defense production program to recover from the strike. (See p.48 for more details on the strike's effect on rearmament.) Although defense users of steel will get the green light, some steel will be available for producers of civilian goods. Yet, it will be months before distribution—for both civilian and military uses—will resume the pre-strike pattern. Emergency direct-

ives will be used on some desperate matters, such as tinplate for the canning industry.

The strike's cost to the government reached record heights last week. Losses in personal and corporate income taxes exceed several billion dollars. The cost to steel users (see the table) was nearly 15.3 million tons of ingots.

What Price Union Shop?

Steel Strike Cost: June 2 to End

TO THE STEELWORKER:

\$637.15 in lost wages

TO THE STEEL USERS:

15.3 million tons in lost ingots

TO THE ECONOMY:

\$4.0 billion in total lost sales, wages

It will be more before we're through because it takes from 10 days to two weeks to get a steel mill back in normal operations.

Variable—Starting operations in steel plants are highly variable. A big task is notifying crews to report. Once the crews are assembled, it takes 5 to 7 days to get open hearths back to normal production. With luck, soaking pits and blooming mills can be operating within 48 hours after workers return. But cold pits may require new bottoms, causing an additional time loss. Finishing mills can usually be operating within a few hours after the crews get back.

Crews on finishing mills can almost immediately go to work on the semifinished piled up, but that will be quickly processed and then will come a lag.

Another Hitch—After steel production finally does get back to normal, another problem caused by the strike may develop this winter—shortage of ore. Because most Lake ore ships couldn't operate during the 53 days of the strike, Lake shipments this year are some 15 million gross tons below what they were at this same time last year. That means trouble when the ore fleet can no longer operate in winter because the normal stocks won't be built up for the seasonal idleness.

All that adds up to this: The nation's steel mills will do well to turn out 70 million tons of finished

steel this year, the lowest output since 1949. Decontrol of steel will not be possible for at least another 11 months.

Union Shop Illegal in 13 States

The United Steelworkers of America-CIO won a modified form of the union shop, but the victory may be an empty one for some 8000 steelworkers in four states whose laws prohibit compulsory unionism.

Georgia, Tennessee, Texas and Virginia all have basic steel ca-

capacity and all have state legislation outlawing the union shop. Annual capacity there now exceeds 1.2 million ingot tons. Lone Star Steel Co., Lone Star, Tex., has another 500,000 tons of capacity scheduled to come in by year-end that will boost the total capacity to 1.7 million tons.

Besides those four states, nine others have laws making the union shop illegal, but no basic capacity exists within their borders. They are Arizona, Arkansas, Florida, Iowa, Nebraska, Nevada, North Carolina, North and South Dakota

Defense Output Off 20 Per Cent

The steel strike brought "creeping paralysis" to production schedules, charges Defense Secretary Lovett. He says it will take three to six months to recover

"CREEPING PARALYSIS" of the defense program as a result of the steel strike was described by Defense Secretary Robert A. Lovett in his first comment on the strike since June 12.

Mr. Lovett characterized the damage as far greater than any possible damage from a bombing attack.

Hidden Damage—The effects on end product production were not immediately apparent, according to Mr. Lovett, because assemblers of end products have been able to live off inventories. The first pinch was felt by the component manufacturers whose requirements were "almost overlooked" in the early days of the strike, Mr. Lovett said. Now even inventories for end products are gone.

He said that the worst part of the situation was that it would take from three to six months after the strike was over to get production back on schedule. This means, according to Mr. Lovett, that production schedules will be off by at least 20 per cent in this calendar year. In terms of budget expenditures, it meant that payments against deliveries in the fiscal year would be from \$2.5 billion to \$5 billion less than Congress had authorized.

Dark Outlook — The losses are higher than 20 per cent in some cases, Mr. Lovett continued. Examples: 1. Chevrolet plant at St.

Louis where 105 mm shells are made. Deliveries were maintained in June out of inventories—but July deliveries will be down sharply and the story will be worse in August. 2. 57 mm recoilless rifle ammunition production will be down 33 per cent in August. Army ammunition production which was to be stepped up handsomely in August, is expected to be 37 per cent less below production estimates. 3. 155 mm Howitzer. U. S. Steel's National Tube Division now on the strike list is normally the producer of 50 per cent of this type of ammunition.

Mr. Lovett said airplane producers were shutting down in increasing numbers, that assembly plants would be the last hit. However, because they are the last to get down, Mr. Lovett warned, they will take a long time to bring back into production.

Fifty-four of the Navy's contractors have shut down, with 29 of them occurring in the last week.

Steel Imports: No Sharp Rise

Imports of foreign steel into the U. S. have not been boosted by the steel strike. A big rash of inquiries failed to firm into orders mostly because American buyers were gambling that the strike would end before overseas buying could be made to pay off.

Foreign producers, while anxious

ous to sell to the dollar market, are hesitant to cut prices in order to get the business.

The road to foreign steel is a rocky one at best for the American user. On top of premium prices for steel (latest prices: \$125 per metric ton for steel bars from German firms; \$95 per metric ton for bars from the Belgians), there is freight, insurance, duties and in most cases a long wait. Quality and metallurgical characteristics are often unknown factors for the American buyer, too.

Despite the obstacles, more imports of foreign iron and steel can be expected as the squeeze from the steel strike continues.

Alcoa and CIO Union Reconvene

Negotiations between Aluminum Co. of America and the United Steelworkers of America—CIO reopened in Washington last week after a long recess. Current union demands are unknown though the union has asked for an 18½ cent hourly wage boost, the union shop and other benefits at previous meetings.

The CIO represents some 15,000 employees in nine Alcoa plants, compared with 9500 workers in six Alcoa plants covered by the settlement with the A.F. of L. Aluminum Workers union of three weeks ago.

DPA Allows 184 More Write-Offs

Defense Production Administration, between July 3 and July 10, approved 184 certificates of necessity for accelerated tax amortization for new or expanded facilities. Value of the facilities is about \$158.2 million. Of the approvals, 135 involved \$100,000 or less each.

As of June 20, the DPA approved 11,529 certificates of necessity allowing fast write-off of \$12.4 billion on projects valued at almost \$21.3 billion.

About 45 per cent of all facilities aided by the program were in place on Mar. 31, 1952, DPA says. By June 30, the figure was estimated at 54 per cent. The program for expansion of natural gas transmission and distribution was farthest along with 99 per cent in place on March 31.



Four Cars Worth of Scrap Crane

This new 15-ton scrap yard crane required four railroad cars for transit to the Bethlehem Pacific Coast Steel Corp.'s Los Angeles plant. The crane will handle a 75-inch electromagnet, which company officials say is one of the largest such magnets on the West Coast. The Los Angeles plant has three electric furnaces

Tin Battle Wages Hot

Preparedness Subcommittee says it's won; traders and producers cry "low blow"

BATTLE of words between the Preparedness Investigation Subcommittee of the Senate Committee on Armed Services and the world's tin producers is reaching new heights of intensity. When the subcommittee in its latest report crowed that the government had won the tin price fight from the "international tin producers combine" and its "vicious propaganda drive," producers and traders cried "low blow" and fought back with denunciations of RFC's "bungling tin policy."

From one of Washington's strongest pressure points, the Malayan Tin Bureau, came a heated and categorical denial of every reference to Malayan tin producers.

Complicated Deal—While RFC has continued its hard bargaining abroad, many U. S. users of the metal have quietly accumulated supplies through traders without going through RFC. Here's how it's done in a complicated but legal currency deal:

Foreign traders with agents in the U. S. convert dollars to pound

sterling on the free market exchange where the pound is discounted about 15 per cent. That allows traders to sell at a price below the cost of the ingredients and still make a profit. Tin is bought with the sterling on the London exchange and shipped to Belgium or Holland. Then 6 per cent lead or copper is added to the pure tin, the gimmick being that to come under RFC's control, imported pig tin must be over 95 per cent tin content. When the metal is shipped to this country, the only requirement is a duty on lead content.

Unrealistic—Once RFC sews up a contract with Bolivia, there's a good chance its buying monopoly will be ended—but with the long-term contracts, there shouldn't be much tin available. With demand currently lagging behind production, market men believe RFC's function reversed—its continuance in the market is holding the price higher than is realistic.

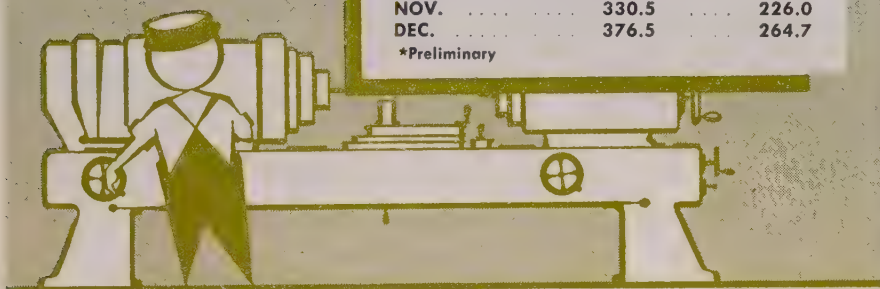
The British are apprehensive over dickering between representatives of the Bolivian producers and RFC over a contract for "all" of that country's production. Historically, Britain takes a sizable chunk of Bolivian output and fears its contract will be repudiated.

New Gains in Machine Tools

Index: 1945-1947=100

	NEW ORDERS		SHIPMENTS	
	1952	1951	1952	1951
JAN.	347.8	475.4	266.6	114.3
FEB.	318.8	615.5	279.6	123.8
MAR.	324.3	590.3	299.5	158.9
APR.	293.5	516.1	307.9	157.7
MAY	284.6	483.0	323.0	175.1
JUNE	351.0*	558.8	330.6*	182.8
JULY		490.6		144.7
AUG.		488.9		178.9
SEPT.		380.2		189.8
OCT.		403.9		221.3
NOV.		330.5		226.0
DEC.		376.5		264.7

*Preliminary



Source: National Machine Tool Builders' Ass'n.

Door to Civilian Tool Sales Unlocked

Unrated orders for machine tools are being permitted in emergency cases now. More are expected under an amendment to M-41

HOW SOON and how many unrated machine tool orders will arise to take the place of stretched-out defense needs? That question holds the key to the short term future of the bulk of machine tool builders.

As of late last week an amendment to M-41 which will allow machine tool builders to accept and schedule unrated orders was on Defense Production Administrator Henry H. Fowler's desk, virtually certain of being signed. Even though machine tool builders cannot give unrated orders a definite place on their order boards until the amendment is approved, some tool builders were applying for and receiving permission to accept non-MRO orders.

Widespread Interest—About two-thirds of the industry producers have signified an interest in unrated business, though a state of emergency need for such business has thus far been reached in only certain lines of tools.

The case of the low-in-price, high-in-numbers machine tool builder has long been awaiting a solution. As a general rule, the

smaller, cheaper tools were the first to pass the crucial scarcity phase. While the backlogs of their big brother (heavier tools costing \$15,000 each and more) were constantly growing and amount to two or three years in some cases, the backlogs of smaller, shorter-lead-time tools were cut down. Many producers of the smaller tools now find backlogs down to the same time it takes to build their machines. These builders are eagerly waiting the impetus to civilian buying expected from the new M-41.

Turning Tide—The wave of order cancellations, which ran to 34.5 per cent of new orders placed for the first five months of 1952, reversed itself in June when the percentage dropped to 24.4. Two things account for the reversal: The Air Force, whose program stretch-out is credited for much of the tool cancellation, is tightening up its screening of cancellations. The bulk of such cancelling has already been done anyway, and there is chance that part of the orders at least will be reinstated (see the following story). Also, new orders for the

month of June hit a new high for the year, thus reducing the percentage figure of any particular dollar amount of cancellations.

New orders in June amounted to \$103,956,900. Shipments of machine tools in June hit the highest mark since 1942, \$97,692,300 worth. These figures are based on indexes of the National Machine Tool Builders' Association and interpolated against dollar shipment figures for 1945 through 1947.

Who's Got What—The NPA's Central Inventory Group is helping defense-supporting contractors get metalworking equipment from the armed services' pools, except for those heavier machine tools which are next to impossible to get from manufacturers. About 30,000 tools of various kinds have now been inventoried and may be rented.

Snap Back in Aircraft?

The stretched-out aircraft program may be stepped up again in the near future

THE AIR FORCE stretch-out decision of last December may be reversed soon. Mobilization officials want the aircraft schedules stepped up even though plane production on critical programs is below anticipated levels for this date.

Desire to speed up production is compounded of two major factors: Mobilization officials believe civilian demand has softened to a point where more defense work would help the economy and, secondly, they believe that the time to obtain planes is now.

Are They Do-Able?—Before Defense Production Administrator Henry Fowler goes to the White House with the request for building up, though, he wants to make certain that the aircraft schedules are "do-able." His concern is based on a study made by William Campbell, chief of the DPA Production Executive Committee.

Mr. Campbell's study questioned the Armed Forces' practice of building as many as five different planes to accomplish a single mission. He thinks the services ought to be able to make up their minds and concentrate on production of and concentrate on a single model.

Freezes Are Costly—However

both the Air Force and the Navy have argued in the past that it's too early to freeze designs. They point out Hitler lost the "Battle of Britain" because of a design freeze too early in the war.

Other unresolved questions raised by the DPA study are:

1. **Speed up of research and development time.** DPA doesn't think enough has been done along this line.

2. **Better production scheduling.** DPA experts believe the build-up of production ought to be gradual rather than with sharp rises as currently required.

3. **Prompter termination of contracts.** DPA believes a quick termination of contracts for planes which are obsolete, rather than the gradual switchover now used, would make facilities promptly available for new production.

4. **Better inspection practices.** In some cases 60 people must unanimously approve a plane before it's accepted. According to the DPA, that means contractors sit around for months not knowing what to do next, while the inspectors try to agree.

Vanadium Builds Two Plants

Vanadium Corp. of America, which must abandon its aluminum operations in Chester, Pa., because the Air Force is reactivating the plant, has broken ground for a \$3.5 million aluminum alloy and ferroalloy plant in Cambridge, O.

Slated for completion next April, the 120,000 square foot facility will be comprised of a three-section mill building, pilot plant, lab and office. Present plans call for manufacture of ferrovanadium, grainal alloys, low carbon ferrotitanium and any new products that may be developed.

VCA officials were introduced to the Cambridge site in a whirlwind inspection tour that also took in the company's new and highly flexible ferrosilicon plant in Graham, W. Va. The \$8 million Graham plant will turn out about 50,000 tons of various grades of ferrosilicon (including silicon metal, ferrosilicon and chrome silicide) annually.

All five furnaces at Graham are now energized; three are in production.

Plant Dispersal: Modern Industry Is On the Move



SOCIOLOGISTS could characterize this as "the age of the great hunt for parking space." Pioneers of modern industry are heading for the wide open spaces in quest of room to park their sprawling one-story plants and two shifts of employees' cars—and it's a reflection of the changing times.

In earlier days workers couldn't live far from the plants in which they worked, plants couldn't be far



from their sources of supply and distributors had to be close to the plants which they served. The upshot of the whole thing was that the central areas of most large cities filled rapidly, and trying to fit a modern plant into an already crowded area is just an impossibility.

No Bomb Scare—So this isn't the "age of being chased to the hills by the A-bomb," despite government threats of "no dispersion, no rapid amortization." Dispersion is taking place primarily because it's good, sound business.

The trend became pronounced shortly before the war, then slackened somewhat during the war years as quickie additions to exist-



ing facilities loomed more expedient than new plants. But since the war, plants have sprouted in small towns and suburban areas like double-decker TV antennas, and the burps aren't being quiet about their bid for invasion. Many are offering lower tax rates and even free land to prospective capital.

Politic—These chamber of commerce come-ons may help one small town get the nod over another, but the decision to move outward is based on more fundamental considerations like the need for greater space. Others mentioned include: Belief the worker productivity will be improved and labor relations on the whole will be more congenial; belief that relief from rising city tax burdens and lower labor costs prevail in small towns; and finally, in the case of sole proprietorship, personal reasons.

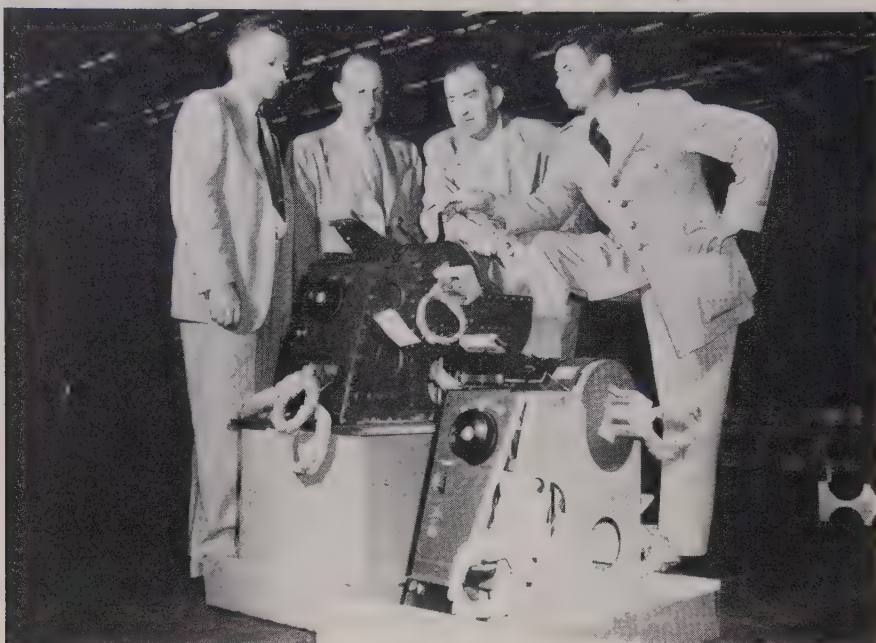
And apparently their hopes aren't unfounded. Some firms report that although labor costs are about the same, they're getting 25 to 32 per cent better productivity from their people in semi-rural locations. Part of this improvement is admittedly made possible because of rearrangement of facilities and addition of new equip-



ment, but some is also believed to be the result of happier workers.

Typical — H. M. Harper Co., Morton Grove, Ill., maker of stainless steel and nonferrous bolts, nuts and fasteners, and James P. Marsch Corp., Skokie, Ill., maker of gages, instruments and thermometers are typical examples. Both firms were located in Chicago and needed more space.

Since the move, Harper employment has risen 100 per cent, Marsch 25 per cent, and neither firm has had trouble recruiting new workers. Only one worker of the 300 Harper employees didn't make the move while Marsch lost none. Labor relations are excellent, freight costs are no higher and business has gained. Both firms recommend the step to other companies.



From Coffeemakers to Control Stands

Officials of Lockheed Aircraft Corp., Marietta, Ga., Cory Corp., Chicago, and the Air Force examine the first pilot control stands Cory is building for Lockheed. The units will be used in B-47 Stratojet medium bombers. Cory also is making electronic and mechanical assemblies for aircraft and ordnance

Management Firms Fire on U.S. Procurement

PROCUREMENT methods used by armed forces are cooling manufacturers toward defense contracts.

That's the opinion of three management firms after examining the progress of top urgency programs at the request of Defense Secretary Lovett. The management companies charge that the Defense Department has failed to diminish industry's apathy to take on defense work. Prime factor in this reluctance, is the government's failure to obtain adequate procurement officers.

Personnel — Under the present rotation system, it is impossible for the government to train capable procurement officers. And more companies are finding that they can't afford to work with untrained government procurement officers. Industry's reluctance to do business with these officials, say the management firms, equals the apathy industry showed in the days just preceding Pearl Harbor.

Another bad practice is the armed services' habit of drawing up long and involved contracts. The management firms say they can't see why most of these contracts aren't reduced to a single page plus specifications and schedules.

The contracts offered today force a manufacturer to seek considerable legal advice before he can sign on the dotted line. Other factors fired upon by the investigators were the lack of incentives offered by the government and the slow procedure in paying for purchases. To correct these wrongs, the government should reward—not penalize—a company that devises more efficient production methods and the government also should pay, in fixed or letter order contracts, for undelivered tools and materials whose title has passed to the government.

SELECTED DEFENSE CONTRACTS IN EXCESS OF \$250,000

PRODUCT	CONTRACTOR
Grinding Machines	Norton Co., Worcester, Mass.
Milling Machines	Cincinnati Milling Machine Co., Cincinnati
	Kearney & Trecker Corp., Milwaukee
Lathes, Turret	Gisholt Machine Co., Madison, Wis.
Lathes, Engine	Lodge & Shipley Co., Cincinnati
Engraving Machines	George Gorton Machine Co., Racine, Wis.
Trucks	International Harvester Co., Chicago
	Studebaker Corp., South Bend, Ind.
Fork-Lift Trucks	Baker-Raulang Co., Cleveland
	Yale & Towne Mfg. Co., New York
Trucks, Electric	Yale & Towne Mfg. Co., New York
Shells, 105 mm	Malleable Iron Range Co., Beaver Dam, Wis.
Cartridges, Ignition	Federal Cartridge Co., Minneapolis
Cartridge Cases	Clayton & Lambert Mfg. Co., Louisville
Aircraft Parts	Sperry Gyroscope Co., Great Neck, L. I., N. Y.
Accelerometers	National Die Casting Co., Chicago
Pressure Altimeters	Nu Tone Inc., Cincinnati
Indicators	Minneapolis-Honeywell Regulator Co., Minneapolis
Radio Sets	Motorola Inc., Chicago
Radio Transmitters	Barker & Williamson Inc., Upper Darby, Pa.
Electron Tubes	Litton Industries, San Carlos, Calif.
Transistors	Western Electric Co., New York
Teletypewriter Sets (3 Contracts)	Kleinschmidt Laboratories, Deerfield, Ill.
Refrigerators	Hussman Refrigerator Co., St. Louis
Cots, Steel	Barcalo Mfg. Co., Buffalo

Patushin Forms Italian Link

Patushin Aviation Corp., Los Angeles, has agreed to supply technical aid to an Italian firm, the Societa Italiana Ernesto Breda of Milan, which will produce jettisonable fuel tanks. Patushin will provide planning, engineering and tooling and SIEB will furnish the plant, labor and materials. The agreement, said to be first of its kind signed by a private U.S. firm with a private foreign manufacturer, was arranged in co-operation with MSA and U.S. Air Force.

Expansion Set for Ores, Others

Expansion goals for iron ore, Great Lakes ore carriers, ocean-going bulk carriers, manganese ore (metallurgical grade), and columbite and tantalite ores have been announced by Ralph S. Trigg, DPA deputy administrator.

Iron ore production has been expanded to provide an annual capacity of 147 million gross tons in 1955.

Great Lakes ore carriers expansion goal has been set at construction or conversion of six carriers of about 20,000 gross tons capacity each by July 1, 1954.

New goal for ocean-going ore carriers has been established at completion of 38 notional bulk ore carriers of 14 knots and 25,000 long tons capacity, by January 1, 1957. The goal for manganese ore, metallurgical grade, is 2.5 million long tons of total supply in 1954.

Columbite and tantalite ore goals, considered together, have been set at 3,000,000 pounds of 62 per cent concentrates per year by 1954.

CHECKLIST ON CONTROLS

GOVERNMENT control orders are digested and listed each week in this "Checklist on Controls." For complete copies of NPA orders, write to NPA Distribution Section, First Basement, New GAO Bldg., Washington 25. For copies of OPS orders, contact nearest OPS district or regional office. For copies of OPS news releases, write David S. Phillips, Director, OPS Administrative Services Division, Temporary E Bldg., Washington 25.

Materials Orders

COPPER, BRASS — Amendments of July 22, 1952, of NPA Orders M-82 and M-86 permit distributors of brass mill and copper wire mill products to re-establish their inventories on a progressive basis until their historical inventories during the base period are reached. Primary purpose of these amendments is to permit distributors, whose inventories have been low, to build up to their historical positions in the industry and to assure equitable distribution of copper controlled materials to distributors. The amendments were effective July 22.

CANS—Amendment of July 18, 1952, of Direction 4 to NPA Order M-25 strengthens the intent of Direction 4 in trying to insure the supply of as many tin cans as possible for packing the 1952 perishable food crop. The amendment was effective July 18.

LIGHTING FIXTURES—Revocation on July 18, 1952, of NPA Order M-97 removes limitations on the use of copper and copper-base alloys in the manufacture of lighting fixtures.

TIN—Amendment of July 21, 1952, of NPA Order M-8 permits the use of a limited amount of tin for products and processes in which it has been prohibited since early 1951. Items affected include jewelry, novelties, toys and games, hollow ware, buckles, buttons and advertising specialties. Slight upward changes also are made in the tin content of solder specifications for general use, and manufacturers of new fluid milk shipping containers are placed under the general quota provisions of the order.

SCRAP—Amendment of July 18, 1952, of NPA Order M-20 deletes the reference to "automobile wrecker" in the records and reports section of M-20. This is to bring M-20 into conformity with revocation of M-92, the automobile wrecker order. Auto wreckers who also are scrap dealers must continue to file report as scrap dealers. The amendment was effective July 18.

ELECTRIC UTILITIES—Direction 1 to NPA Order M-50 permits the electric utilities industry to exceed the 90-day inventory restriction on copper and aluminum. Without such relaxation during the steel strike, the industry would have had to cancel or postpone deliveries of copper and aluminum that could not be used within the prescribed time limits because of the lack of steel. Direction 1 was issued July 22, 1952, and made effective on that date.

NICKEL, CHROMIUM — Amendment of July 23, 1952, of Schedule C to NPA Order M-80 rearranges and clarifies the



Harvey T. Harrison was re-elected president of the Alloy Castings Institute at Hot Springs, Va. The casters heard research reports in the field of high alloy castings being carried on at Ohio State University and Battelle Memorial Institute, Columbus, O. A final report on substitution of titanium for columbium in cast stainless steel alloys will be presented in September

permitted nickel and chromium content of alloys of different temperatures in multiples of 100 degrees. The amendment was effective July 23.

ALUMINUM—Amendment of July 23, 1952, of NPA Order M-84 eliminates specific restrictions on the grade and weight of aluminum to be used for destructive purposes. The amendment was effective July 23.

ALUMINUM—Amendment of July 23, 1952, of NPA Order M-5 withdraws allotment symbols and authority to place authorized controlled materials orders previously issued to aluminum foil and powder fabricators. Fabricators may obtain necessary controlled materials by placing certified orders monthly for an amount equal to the gross weight of the finished product during the preceding month. It was effective July 23.

ALUMINUM DISTRIBUTORS—Amendment of July 23, 1952, of NPA Order M-88 sets up a new class known as aluminum distributors. This group is authorized to order aluminum from a consumer of metals or a contractor who properly receives delivery of the metal under CMP but who has no further use for it. It was effective July 23.

ALUMINUM RETAILERS—Amendment of July 23, 1952, of NPA Order M-89 covering distribution of controlled materials to retailers eliminates aluminum foil and powder from the list of controlled materials. The amendment was effective July 23.

Controlled Materials Plan

PRODUCER DEFINED — Interpretation 1 to CMP Regulation 1 points

out that manufacturers cannot be considered producers under the Controlled Materials Plan unless they convert controlled materials or Class A products into Class B or other Class A product. Producers who subcontract or otherwise delegate the entire production of A or B items to other manufacturers cannot be regarded as A or B producers. Those who are not producers within the meaning of this interpretation are not eligible to apply for authorized production schedules or allotments or to avail themselves of the self-authorization privileges extended to Class B producers by Direction 1 to CMP Regulation 1. Interpretation 1 was issued on July 16, 1952, effective on that date.

CONSTRUCTION — Amendment of July 23, 1952, of revised CMP Regulation 6 permits builders who are unable to use their allotments of steel and other controlled materials to sell them to recognized distributors. The amendment was effective July 23.

ALUMINUM—Amendment of July 23, 1952, of revised CMP Regulation 6 removes aluminum foil and powder (atomized or flake, including paste) from the list of controlled materials. The amendment was effective July 23.

SURPLUS STEEL — Amendment of July 23, 1952, of CMP Regulation 1 permits consumers to sell surplus steel without specific NPA approval to established steel distributors. The amendment was effective July 23.

NPA REGULATIONS

PIG IRON, ALUMINUM — Amendment of July 23, 1952, of Direction 3 to NPA Regulation 2 stipulates that no ratings except direct defense ratings may be used to obtain pig iron after July 18, 1952, and aluminum foil, aluminum powder (atomized or flake, including paste) after July 23, 1952. Only ratings that can be used for these products are A, B, C or E and one digit, or Z-1 or Z-2.

PIG IRON, ALUMINUM—Amendment of July 23, 1952, of NPA Regulation 2 reflect spotty changes in inventories position. Among changes are: Permitted inventory of pig iron is reduced from 60 days to 30 days and aluminum castings and forgings are raised from 45 to 60 days. It was effective July 23.

Price Regulations

MACHINERY RESELLERS—Amendment 10 to Ceiling Price Regulation 67 clarifies certain pricing provisions affecting resellers of machinery and related manufactured goods. The amendment was issued July 21, 1952, and made effective July 26.

MODIFIED COMMODITIES—Amendment 34 of Ceiling Price Regulation 30 provides a method for determining ceiling prices for commodities which have been modified substantially by the manufacturer. The amendment was issued July 21, 1952, effective July 26.

SALES TO GOVERNMENT—Special overriding regulations governing sales to the United States, its agents and suppliers were revised and reissued in a single regulation, Revision 1 of General Overriding Regulation 2. It was issued July 21, 1952, effective July 26.

United States self-sufficiency in manganese could lie just ahead . . . Negotiated government contracts can now include "reasonable obsolescence"

U. S. SELF-SUFFICIENCY in manganese may be possible. Contributing to that goal could be experiments of the Bureau of Mines, to be completed this fall. Thus far its pilot-plant research program for recovering manganese from open-hearth slag of furnaces operating on lake ore has worked out the first two processing operations.

First, by charging open-hearth slag containing eight to ten per cent manganese in the laboratory-size blast furnace, it has produced a 20 per cent spiegeleisen high in phosphorus. Second, by blowing this spiegel in a basic-lined converter, it has obtained a high-manganese slag containing 50 to 55 per cent manganese and 0.1 maximum phosphorus.

Next Step—This material is to be charged into the blast furnace this fall to produce standard 80 per cent ferromanganese. In addition, the high-phosphorus iron residue in the first converter is to be blown in a second converter to remove the phosphorus.

The end result will be two valuable products if all goes well: A high-grade, low phosphorus melting stock for charging into open hearth furnaces and a high-phosphorus slag for use as commercial fertilizer. Bureau spokesmen say that, counting these three values—the 80 per cent ferromanganese, the high grade melting stock and the fertilizer—the cost of producing the ferromanganese would not be much out of line with conventional costs.

Almost Enough—From this slag alone, as much as 400,000 tons of 80 per cent ferromanganese, or almost 50 per cent of our requirements, could be produced annually. With increased production under GSA, exploration of new resources and lower manganese consumption per ton of steel believed possible, it may be no exaggeration to say that we could become self-sufficient in manganese in a real pinch.



SUBSTITUTES IN BUILDING

. . . some not worth a cob

Accept Some Substitutes . . .

Conservation in permanent construction may not always be achieved effectively through substitutions of temporary or expedient materials such as "Victory" materials of World War II. That's one conclusion of the Building Research Board's final report on "Conservation in Building Construction."

Many proposals of interest to steel producers and metalworking companies are contained in the report which deals with substitutions that may be made during normal periods and not merely during periods of shortage. Copies may be purchased at \$3.50 from the Office of Technical Services, Department of Commerce.

Obsolescence Acquiescence . . .

Cost computations in negotiated contract pricing may include "any extraordinary obsolescence reasonably assignable to the emergency period" according to a long awaited ruling by John R. Steelman, acting director of defense mobilization. Under the ruling, Amend-

ment 1 to Defense Mobilization Order 11, "any accelerated amortization of depreciation which is in excess of true depreciation, regardless of whether such excess is included in tax amortization certificates, is not allowable as an element of cost in negotiated contract pricing."

The amendment provides that the procurement agencies concerned may obtain the assistance of the Defense Production Administration in calculating in each case the depreciation which may be allowed as a cost to the government under a negotiated contract.

MRO Sales: Renegotiable? . . .

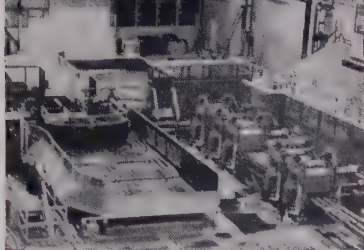
Although the Renegotiation Board expects that MRO (maintenance, repair and operating) orders generally will be classed as nonrenegotiable, as provided in recent staff bulletins, it now classifies MRO sales as "possibly renegotiable." This change is set forth in Staff Bulletin 3B, a revision and supplement to previously issued bulletins 3 and 3A. The bulletins tell how CMP allotments and rating symbols can be used as aid to defense contractors in determining which of their sales are subject to renegotiation.

Export Opportunities Info . . .

United States firms interested in receiving information about export business opportunities under the current economic and military assistance programs can get on the free mailing list by writing to the Office of Small Business, Mutual Security Agency, Washington 25.

Insecure? Check This . . .

Not only defense contractors, but industries generally, will want to study the Munitions Board's revised "Standards for Plant Protection" which lists basic minimum security standards with problems of espionage, sabotage, bomb damage, etc. Copies may be had at 10 cents from the Superintendent of Documents, Government Printing Office, Washington 25.

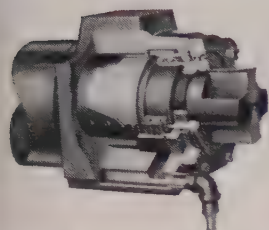


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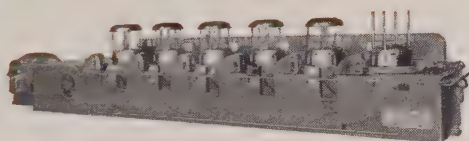
geared

TO HELP YOU PRODUCE MORE STEEL PRODUCTS



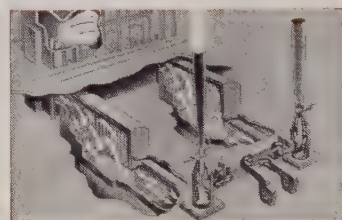
Argo Roll Neck Bearings

will increase the accuracy of your product and save on operating and maintenance costs.



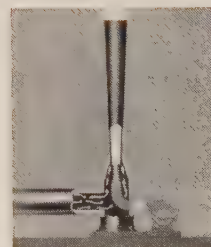
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Morgan Ejectors

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"I was first!..."

The last time I watched the cold blue of early morning was inside a fox hole . . . this morning it was inside America.

Funny, I couldn't sleep on the problems of this election . . . after all, I'm a "young-old-timer" at politics. But for the first time . . . I feel the courage of my convictions.

After we put the kids to bed last night, we read the papers and listened to political speeches on the radio. It made me sick down inside. If the fellows we left behind in Germany or on the islands in the Pacific could see how we've made a mess of things for their families, they'd spin in their graves.

I couldn't sleep for the feeling of dirtiness and guilt . . . I even turned off the alarm hours before it was ready to ring. While the kids were still sleeping . . . safe and warm . . . I made my "X" for freedom.

I was first this morning . . . I had to be!

558 CH Cold Wrought Metal Fabricators by
Chandler Products Corp.
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\$6-million-a-mile Highway in Venezuela

More than 200 United States-built bulldozers, tractors, trucks and roadscrapers are trying to finish the highway linking Caracas and La Guaira, Venezuela, before the Tenth Inter-American Foreign Ministers Conference. Known as the Autopista, the road replaces a 19-mile twisting route in steep Andean hills. Two giant tunnels over a mile long are being built by Morrison-Knudsen of Boise, Idaho. Highway is expected to cost \$6 million a mile, over six times the U. S. cost



NEA

Generator for Chile

General Electric Co. is making two of these huge generators for the Anglo-Lautaro Nitrate Corp. in Chile. Each stands 21 feet high, is 24 feet across and weighs 86 tons. Nordberg 12-cylinder diesels will supply power

U.S. Goes Abroad To Buy Arms

Purchases of war materiel in foreign countries will help those countries close their dollar gaps only in the short run. Trade restrictions will remain

OFF-SHORE PROCUREMENT of arms by the U.S. will only continue the pump-priming effects of direct financial assistance to foreign countries. Instead of giving foreigners the dollars with which to rebuild and rearm, the U.S. will buy their armament products.

That won't solve the basic problems, though, of restoring balances in foreign trade and of removing formidable exchange restrictions. The best the American businessman can hope for is that these restrictions will not get any tighter.

A Tune with Strings—Latest step in off-shore procurement is the expression of U.S. willingness to buy war planes abroad to the tune of \$225 million. Several strings were attached to the offer: Favorable action must also be taken by other North Atlantic Treaty countries on similar proposals amounting to \$517.5 million in American purchases from Europe; U.S. will procure aircraft in NATO

only after full consideration of the recommendations of the NATO staff and of the comments on these recommendations by other countries concerned with the proposed aircraft program.

U.S. approval, as expressed so far, does not include any commitment concerning deliveries of scarce U.S. tools and materials to countries that are producing the aircraft, nor does it include any special rights and privileges with respect to manufacturing.

Atop the Pyramid — That aircraft program would be pyramided on top of off-shore buying already contracted. France has commitments for \$335.5 million in war material; Italy has \$129 million worth; Britain, \$69 million; Belgium, \$46 million; Netherlands, \$38 million; Greece, \$11 million; Norway and Denmark, \$6 million each.

Britain expects to better her standing in off-shore buying when the aircraft contracts cited above

are let. With such defense business, Britain could solve two problems at once. She could contribute a share to the common defense without diverting more scarce materials to an across-the-board military arms program. Yet, foreign currency reserves would be built up by selling airplanes.

Dollar Shortage Stops Sales

There's a big head of pressure building up in Brazil for American-made construction equipment; only a small percentage of it will find release in this country, though. Major block is a lack of dollar exchange in Brazil.

As a result of growing interest in improving Brazilian transportation facilities, the Brazilian Congress appropriated 2 billion cruzeiros (\$100 million) for port, highway and railway rehabilitation in 1952. Production of construction machinery in Brazil is negligible and is limited to lighter types of equipment. If the recurrent dollar shortage in Brazil is not relieved, Brazilians will turn elsewhere for the heavier equipment now much in demand. Principal European suppliers are England, France, Germany and Italy.



Economics teachers see industry at Ferro Corp.'s Cleveland plant



After classes or plant visitations the professors have a chance to talk practical economics with local men of industry. At a dinner-smoker Dr. Ed O. Graeffe, dean, Lawrence Institute of Technology, left, talks things over with Frank H. Knight, visiting lecturer from the University of Chicago, center, and Carl E. Heil, president, Heil Process Equipment Corp., Cleveland. The professors bombard the industrialists with questions about the intricacies of their businesses, the general economic outlook, their biggest gripes in doing business

Industry Helps Educate the Educators

Fifty college teachers learn what makes the economic system work in a closeup study of business at Case Institute of Technology. Republic Steel picks up the tab

COLLEGE students too often fail to understand what makes the American economic system tick. Their knowledge of industry and business operations, government-business relations and the value of certain freedoms is limited.

College economics teachers have the same failings, complicated at times by suspicion of the system.

These facts, revealed by surveys by the American Council on Education and by Opinion Research, prompted Case Institute of Technology, Cleveland, to attempt remedial action. The medicine is being administered first to the college professors.

The Prescription — Early this summer, Case invited 50 economics teachers from as many colleges to participate in a six-weeks "Economics in Action" program. The course is designed to provide the participating professors with a closeup study of the economics in American business. It includes field trips to industrial plants, transportation systems, financial

institutions, wholesale and retail establishments. It provides an opportunity for the teachers to meet and talk with executives of 18 business enterprises in the greater Cleveland area. Weekly dinners and smokers provide an opportunity for businessmen and the teachers to swap views and ideas and to discuss theories.

Two-Way Give—All the benefits do not derive to the teachers. Many a businessman is receiving some new ideas and occasionally a rude jolt in the give and take with the professors.

In return, the college men are exposed to some economic facts of life they hardly even suspected.

Blue-Ribbon Faculty — In addition to closeup contacts with business and businessmen, the program includes lectures by six top-ranking economists. These include: W. A. Paton, University of Michigan; Ewan Clague, Commissioner of Labor Statistics; John M. Clark, Columbia; Fritz Machlup, Johns Hopkins; Frank H. Knight, University

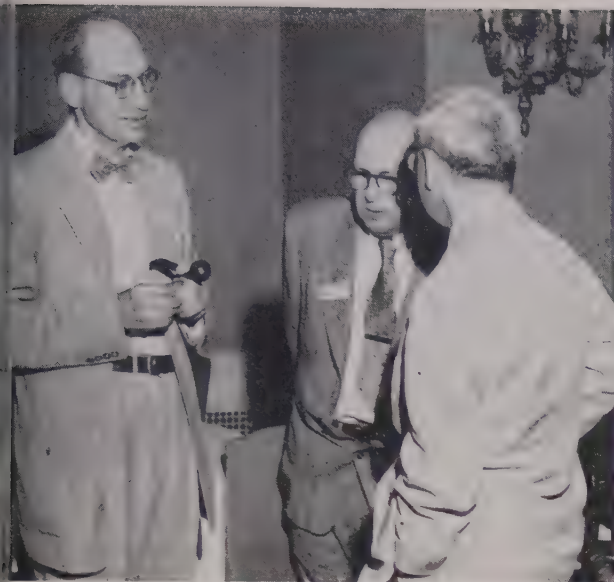
of Chicago; and Arthur F. Burns, Columbia.

It wasn't easy for the 50 professors to revert to the role of students. Sometimes they forgot and lectured their teachers.

Communication Aids—A third phase of the program is the introduction of new techniques for communicating knowledge. These include visual aids and various mechanical gadgets designed to make learning easier and more effective. Many were developed for companies instructing employees in economics, but are adaptable for college classrooms.

Birth of a Refrigerator — This course includes a case study of Westinghouse refrigerator. This is in reverse in that the professors start at the retail outlet and follow the refrigerator back through the wholesale establishment through the component suppliers.





L. Billingsley, left, president, Fuller & Smith & Ross Co.; G. G. Nuss, center, vice president, White Sewing Machine Co.; Dr. J. Curt Victorius of Guilford College



Before, after and during the dinner smokers at which Case Institute played host, chief topic of conversation between professors and industrialists is economics. LEFT ABOVE: An industrialist, C. S. Parke, left, vice president of Harshaw Chemical Co., Cleveland; a professor, Dr. Lawrence I. Abbott, right, Mt. Holyoke College. RIGHT ABOVE: Prof. Clay H. Hollister, left, who acted as chief host for Case Institute; the industrialist with him is C. E. Smith, who is president of Towmotor Corp. of Cleveland

to the manufacturer and then on back to the mills that produce the raw materials. En route they study manufacturing techniques, financing, transportation and selling. They will not see Betty Furness.

No Vacation—From the time the professors scurry across the Case campus to the first classes at 9 a.m. their days are crowded with lectures, discussion periods and plant visitations. A couple of evenings a week are devoted to dinner-smokers, industrial movies, with an occasional baseball game or similar entertainment tossed in.

Origin — Idea for the "Economics in Action" course was conceived by Clay H. Hollister, head of the Case Department of Engineering Administration, who was bothered by the lack of understanding of college students and professors of the economic system. Mr. Hollister mapped an outline of the course and took it to Republic Steel Corp., which for several years has been offering courses in basic economics to its supervisory employees. Republic thought the idea had merit and agreed to pick up the tab for the program's expenses, estimated to run more than \$30,000. Ernest A. Furrer, one of Mr. Hollister's assistants, worked out the details.

Evaluation—What good will be accomplished by the program? Case authorities wish they had an

accurate means for measuring their results.

Visiting professors generally think it is a wonderful idea. They appreciate the opportunity to descend from their ivory towers to see business and industry in operation and to talk to the men who make it operate.

But this opinion isn't unanimous. One young instructor still voices suspicion of a system that "permits a big corporation to buy up

a college course to teach a peculiar brand of economics." The youngster turns a deaf ear on the explanation that Case took the initiative and has complete control of the program. His is a minority voice.

Watched — The Case-Republic venture is attracting national attention. Several other universities are considering similar programs. Other corporations may be ripe for sponsorship next year.

Congress O.K.'s IMC, but Allocates No Money

THE ADMINISTRATION finds it won a hollow victory when the extended Defense Production Act permitted continuation of American participation in the controversial International Materials Conference.

Congress gave that approval with its right hand, but with the left it barred use of funds in the State Department Appropriation Bill to finance U. S. participation.

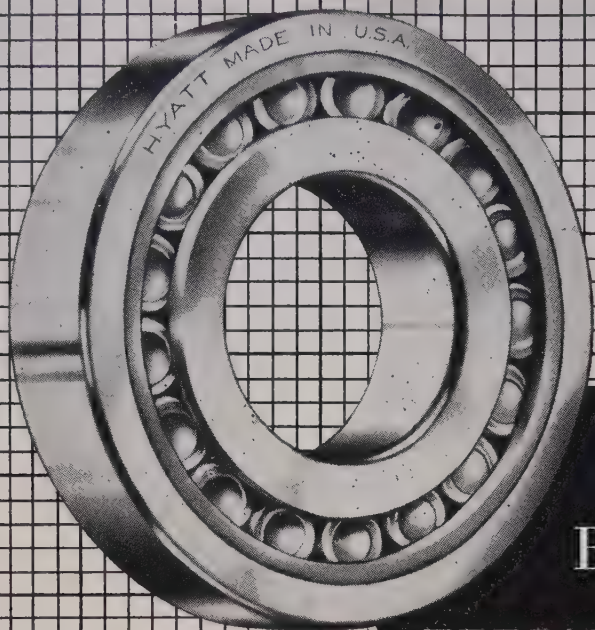
By the Side Door — Present thinking calls for the Defense Production Administration to keep the U. S. end up in the conference. Interested federal agencies would put up part of the money. In any event, American funds for the job will be limited and the IMC's activities will probably be curtailed.

A clue to the planned solution is some personnel shuffling in DPA. The U. S. delegate to IMC,

James F. King, becomes DPA deputy administrator for construction and resources expansion. He will continue as the U. S. representative to the central group of IMC. Frederick Winant, director of DPA's international activities, will serve as Mr. King's alternate.

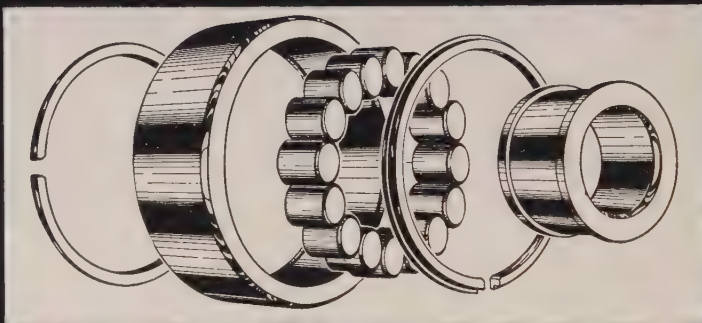
Sulphur: U. S. Gets Lion's Share

The United States will get over two-thirds of the sulphur allocated by the International Materials Conference for use in the third and fourth quarters of 1952. The Sulphur Committee of IMC estimates production will reach 3.2 million long tons in that period, with the U. S. getting 2,307,000 long tons of it. In addition, domestic users in the United States may buy any sulphur allotted to other member nations but not used by them.



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Typical of the Hyatt-Hy-Load line, the U-TM bearing, one of the non-separable types is illustrated and shows its full complement of rollers for maximum bearing load-carrying capacity.

And all other types, too, are just as correct in their design and equally precision-built for the kind of dependable bearing performance you expect from Hyatt equipped machines. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

HYATT ROLLER BEARINGS



By Their Models They Are Judged

Scholarships and \$65,000 wait for boys who win this year's Fisher Body Craftsman's Guild contest. Selection is on the basis of originality and artistic merit of design, practicability, fidelity to scale, workmanship and finish. Among this year's novel entries are a battery-propelled car and an aluminum-cast model

The steel strike has caused weird auto production shifts. Most high-priced and other small-volume lines are doing as well or better than ever

DETROIT

A YEAR from now a historian looking back only at the production rates of the auto industry for the weeks in July would come to some completely weird conclusions.

He could discover if he chose the week ended July 19 that Mercury was the leading make of car, productionwise, followed closely by Buick. Chevrolet ran a poor third. He could learn that two of the largest producers were Hudson and Kaiser-Frazer and that Ford had ceased to make cars.

Out of Kilter — These absurdities, of course, are the result of the steel strike. They are some of the spectacular things which are happening to the industry, but are the things which are least likely to be of much significance when full production can be resumed.

But there are a few aspects of this month's unusual operations which may have some moderately

long-range implications. For example, the percentage of high-priced cars being produced is very much greater than normal. Cadillac took last week out for inventory but is expected to resume this week, possibly scheduling six-day operations and overtime. Lincoln, likewise, is producing at an approximately normal rate, and Chrysler Division's output has suffered less proportionately than Dodge, DeSoto and Plymouth. Both Cadillac and Lincoln in the week ended July 19 made more cars than they did a year earlier. Hudson and Kaiser-Frazer also performed the feat.

A Help—As low volume producers, all obviously can get along with less steel than is needed to keep the assembly lines of, say, Ford, Chevrolet and Plymouth operating. A single piece of steel consequently is of much greater value to them. Hudson and Kaiser-

Frazer have the additional advantage that they had been underproducing their allocations before the strike but were stocking the material anyway. They've been making hay from that steel.

These makes may well show new rankings in the industry when production statistics for third quarter can be compiled. And similarly they may occupy higher places in the sales line-up if other makes of cars are less obtainable.

False Start?—When steel production is resumed, there is a good chance false optimism will be generated by the initial shipments to the auto industry and its suppliers. Checking on the status of their orders at mills some consumers are finding that they will probably get a good chunk of the material that is now partially finished because it may be useless for anything else, but after that first shipment the drought will resume until the order books can be unscrambled and the military wants filled.

Ford Loses in Materials Fight

Refusal of the National Production Authority's Appeals Board to grant Ford's demand for a larger piece of the auto industry's production pie does not preclude the possibility that Ford may yet win out.

Ford had asked for an increase in its allocations of controlled materials and a change in percentage-of-industry output from 21 per cent to 23.42 per cent for passenger cars, from 21.03 to 26.67 per cent for light trucks, from 26.87 to 33.22 per cent for medium trucks, and from 13 to 15.68 per cent for heavy trucks.

Academic?—At the time when Ford filed its formal appeal (last March), the consensus of reasonably dispassionate observers was that the questions Ford was raising were mostly academic. Thinking then was that controls on materials and output would shortly be raised and Ford (and everyone else) would have its production es-

tablished in the market place. Many observers believed that Ford was taking advantage of the hearings to make a sales pitch.

Ford's major emphasis was on what it alleged to be the wrong choice of base periods for which NPA had calculated percent-of-industry figures. It argued that the year immediately preceding Korea, adjusted in some fashion for Chrysler's strike during that period, be used as base. Ford, if its recommendations had been followed, would oust Chrysler from the industry's No. 2 spot, and would reduce the allocations made to all but one of the independent producers. Only General Motors and Studebaker sat on the sidelines while the rest of the industry vigorously opposed Ford's proposals.

Thumbs Down—The NPA board in refusing Ford's demands ruled that the 1947-49 base was a legally proper one. It rejected Ford's contention that it had suffered a loss in competitive position relative to Chrysler and GM.

On the basis of this it looks as though Ford is stuck with its present percentages. Immediately upon receipt of the board's ruling, however, Ford's vice president and general counsel announced that court action might follow. The company is still thinking along this line. A gimmick in the defense production act, requiring that "current competitive position" be considered, makes this avenue open to the company. Company-by-company meetings are being held by NPA's Motor Vehicle Division to assess changes which took place in the industry in the year ended June 30. If adjustments are found warranted it is the plan of the division to make some percentage changes in its distribution of fourth quarter materials allocations. Current thinking is that 60,000 cars and 10,000 trucks may be shuffled and dealt out to those companies which prove a change occurred in their competitive standings.

Half Production at Ford

Ford's dislike of arbitrary base periods on which future production quotas may be determined is believed to be one reason why it is going to some extreme lengths to

Auto, Truck Output			
U. S. and Canada			
	1952	1951	
January	409,406	645,688	
February	467,691	658,918	
March	517,207	792,550	
April	576,505	680,281	
May	546,602	695,898	
June	541,134*	653,682	
July		522,858	
August		571,442	
September		505,758	
October		558,971	
November		480,199	
December		402,729	
Total		7,179,161	
Week Ended	1952	1951	
June 21	129,574	158,909	
June 28	124,337	156,105	
July 5	86,036	98,087	
July 12	70,592	117,747	
July 19	32,302	131,419	
July 26	34,000*	131,462	

Sources: Automotive Manufacturers Association, Ward's Automotive Reports. *Preliminary.

maintain a semblance of production in this steel-famine period.

The off-again, on-again production schedule at Ford and Lincoln-Mercury plants has enormously complicated Ford's operations and incidentally has aroused the ire of the UAW-CIO which blames "vice-presidentialitis" for the numerous changes in work plans at company plants. After a week shutdown, Ford last week put 15 Ford Division assembly plants back to work and scheduled operations in many of the Rouge's plants which had been idle. It recalled 22,000 men. Lincoln-Mercury Division ran its Detroit Lincoln plant but had to close three assembly plants. The Highland Park truck and tractor lines were also to run for five days.

In essence the company finds that its own steel mill which normally provides about 50 per cent of its requirements, can juggle the product mix enough and provide enough output to run the auto plants about one week out of two. Quite often short lengths of bars or narrow widths of sheet have to be welded together to get usable sizes, and men in metal finishing operations have been working 12-hour days to make car output possible at all.

Standard: Steering Gear Testing

Production-line routine testing with research laboratory precision is standard procedure at Chrysler's

New Castle, Ind., Steering Gear Plant since installation of a new device, developed by the corporation's engineering division. The machine applies a pre-determined load to the steering gear and then records the effort required to turn this gear against the load. A graph traces the effort input to produce a given amount of work—it draws a picture of the gear's efficiency. The entire test takes less than six minutes.

About the size of a kitchen sink and portable, the device is proclaimed by C. F. Porter, head of the experimental steering gear laboratories, as making possible for the first time "accurate, running checks on steering gear efficiency right at the production line." Formerly only small samplings of production were given a precision check in laboratory tests.

More Personnel Shifts at GM

Death of Arnold Lenz and the subsequent appointment of Robert M. Critchfield as general manager of Pontiac Motor Division of General Motors brought about two high-level changes in other GM divisions last week. Succeeding Mr. Critchfield as assistant general manager of Allison Division is Paul W. Rhame, who has been general manager of Rochester Products Division. Howard W. Brandt, who has been director of industrial and public relations at Rochester assumes the general managership.

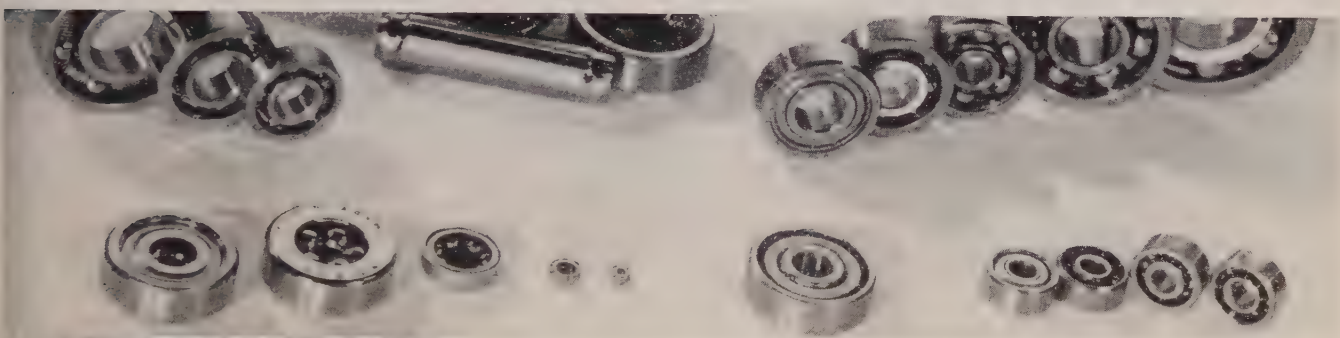
A new appointment to the position of general sales manager of United Motors Service Division has not been named. Charles F. Culhane, 52, who has occupied this post, was found shot to death in Oregon last week.

Murmurs: Rumors of the Week

Packard under James Nance's presidency will go into production of home appliances. . . The 1953 Cadillac will sport a 210-hp engine and a real rear-fender air scoop to supply the optional air conditioning unit. . . Under General Tire & Rubber Co.'s control Crosley Motors Inc. will cease output of cars. . . The Italian-made wire wheels on Buick's Skylark cost \$125 apiece.



FOR PRECISION CONTROL—LAND, SEA OR AIR New Departure Instrument Bearings



Automatic Bearing Torque Testers
at New Departure

- In its modern plants, using the latest and finest of precision equipment, New Departure produces ball bearings for all types of ultra-precise instruments.

And this exacting work is done with the full benefit of more than forty years experience in the manufacture of precision bearings.

JUST OUT — New Departure's Catalog and descriptive Booklet on Precision Instrument Bearings. Limited edition for instrument engineers. Please use your business letterhead.

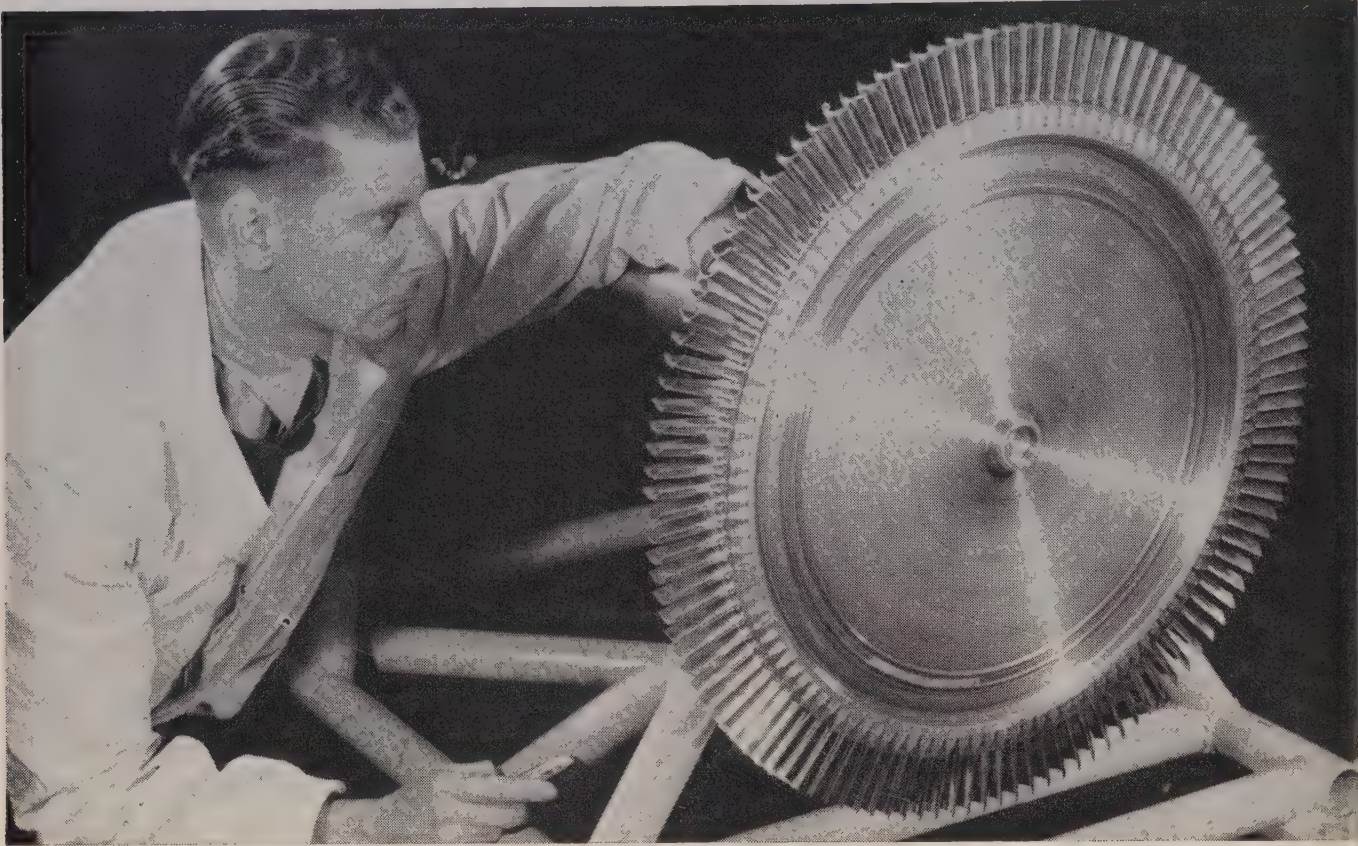
Nothing Rolls Like a Ball

NEW DEPARTURE BALL BEARINGS

AD NO. 176

NEW DEPARTURE • Division of GENERAL MOTORS CORPORATION • BRISTOL, CONNECTICUT • BRANCHES IN ALL PRINCIPAL CITIES

More "16-25-6" used in jet engine rotor wheels than all other alloys combined



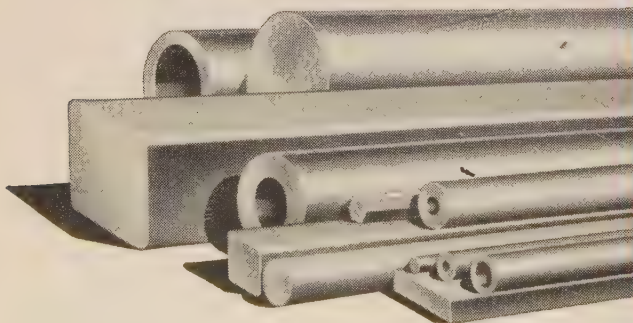
...and here are 3 big reasons why:

TODAY, more "16-25-6" goes into solid and composite jet engine rotor wheels than all other super-alloy steels combined! That's because "16-25-6" has the *best* combination of the three top requirements for jet engine rotors:

1. "16-25-6" has good high temperature properties. Operating at temperatures up to 1500° F., it retains high creep and stress rupture strength. And it has excellent resistance to scale and corrosion.
2. "16-25-6" is relatively low in strategic alloys. It uses none of the highly strategic alloys, contains no cobalt or columbium.
3. "16-25-6" has good machinability.

Put the Timken Company's wide experience in high temperature steels to work for you. We'll help you adapt "16-25-6" to your purposes—or help you choose other alloy steels suited to today's high temperature, high speed applications. Write The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

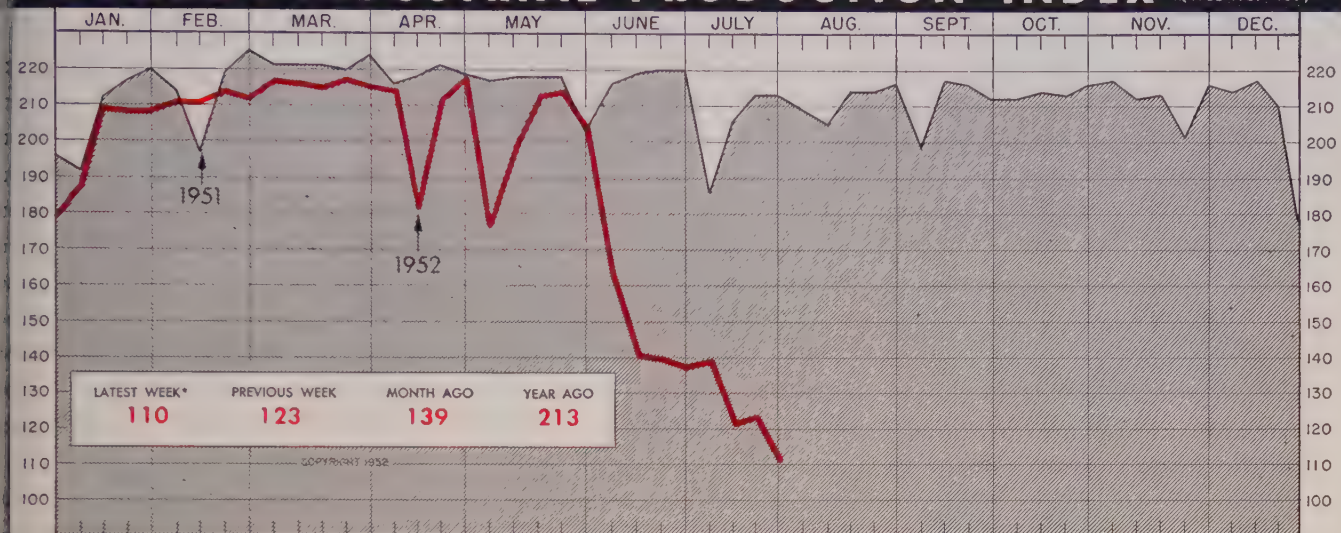
YEARS AHEAD—THROUGH EXPERIENCE AND RESEARCH



TIMKEN
TRADE MARK REG. U.S. PAT. OFF.
Fine Alloy
STEEL

SPECIALISTS IN FINE ALLOY STEELS, GRAPHITIC TOOL STEELS AND SEAMLESS TUBING

STEEL'S INDUSTRIAL PRODUCTION INDEX (1936-1939=100)



* Week ended July 19

Based upon and weighted as follows: Steelworks Operations 35%; Electric Power Output 23%; Freight Car Loadings 22%; and Automobile Assemblies (Ward's Reports) 20%.

Cost of the steel strike is looming higher daily as more metalworking companies are forced to halt operations. Index plunges downward as auto output slips off

PRODUCTION losses from the steel strike are spreading rapidly.

Until recently, the impact of the steel shortage fell mostly on users of large amounts of steel. Automotive companies and makers of stoves, refrigerators and other heavy durables were among those particularly hard hit. Now, the production picture is considerably worse, as halts and slowdowns occur among an increasing number of companies which use less steel in their products.

Full Brunt—As of today, the nation has lost about 15.3 million net tons steel due to the strike. That loss is greater than the amount we have added to our national productive capacity since Korea and almost half the total amount Russia produces in a year. Weekly loss from the strike is 1.8 million tons. Yet the full brunt of the steel shortage will not be felt until after the strike.

It takes the steel plants ten days to two weeks to return to capacity production after a shutdown, but it will be some weeks later that the metalworking companies can obtain enough steel to return to former operations. The automotive

companies, for instance, may not be able to return to volume production until four or five weeks after the strike's end.

Another Plunge—Reflecting the tightening of the steel shortage on the nation's economy, STEEL's industrial activity index plunged to 110 per cent of the 1936-1939 average in the week ended July 19. This compares with 123 per cent in the previous week and 213 per cent in the week ended May 24, the last full workweek before the strike. In the week ended July 19, steel output edged up 0.5 of a percentage point to 15 per cent of capacity, while auto-truck output dropped to nearly half the previous week's turnout. Freight car loadings edged downward, while electric power output climbed in the week ended July 19.

Auto Output Creeps . . .

Forced to a creep by the steel strike, automotive assembly lines are turning out only a token production. U. S. plants produced only 23,025 passenger cars and 3305 trucks in the week ended July 19, says *Ward's Automotive Reports*. This turnout is less than

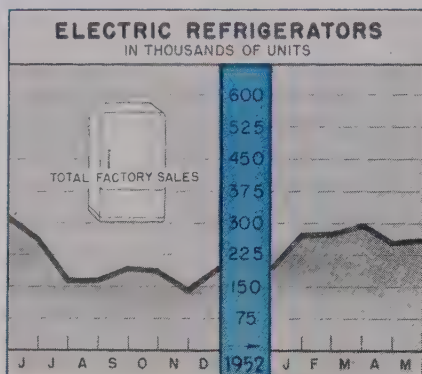
half the previous week's output when production was down to a six-year low of 51,476 passenger cars and 10,195 trucks.

Ironically, the steel shortage is coming at a time when passenger cars are selling like hotcakes on a cold day. Retail deliveries in June reached 415,937 passenger cars and only 261,444 passenger cars were in the field on July 1. Since then, dealers have received only about 122,000 cars. As July comes to an end, empty showrooms are appearing throughout the nation.

In the week ended July 19, U. S. and Canadian plants produced 32,302 passenger cars and trucks, compared with 70,592 units in the previous week. In the same week last year, combined U. S. and Canadian output reached 131,419 passenger cars and trucks.

GOP Boosts Electric Output . . .

As radio and television sets clicked on throughout the nation during the week of the Republican convention, electric power generation zoomed upward throughout the nation. Electrical energy distributed by the light and power industry totaled 6897 million kilowatt hours in the week ended July 12. That's a rise of more than 500 million kilowatt hours from the previous week and 3.7 per cent

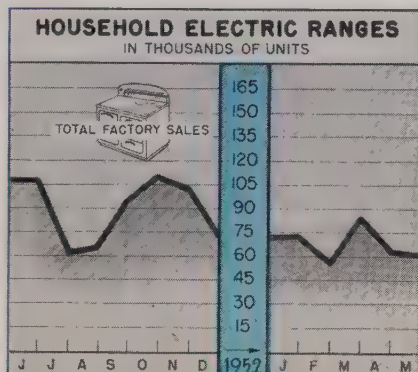


Electric Refrigerators

Total Factory Sales—Units

	1952	1951	1950
Jan.	275,297	465,903	375,856
Feb.	277,986	403,035	461,256
Mar.	298,092	558,503	586,293
Apr.	255,009	409,887	546,279
May	263,719	309,722	542,856
June		261,298	549,740
July		163,922	507,029
Aug.		165,309	518,359
Sept.		193,929	535,002
Oct.		191,519	420,431
Nov.		147,394	411,201
Dec.		195,403	394,265
Total ...		3,465,824	5,848,579

National Electrical Mfrs. Assn.

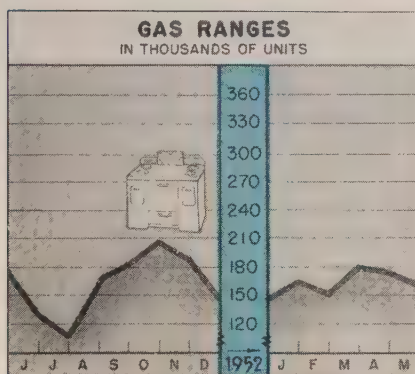


Household Electric Ranges

Total Factory Sales—Units

	1952	1951	1950
Jan.	72,830	130,316	97,925
Feb.	55,728	121,585	118,989
Mar.	83,485	159,865	145,417
Apr.	62,746	118,823	132,859
May	61,209	106,685	145,498
June		106,589	158,534
July		60,530	130,505
Aug.		64,042	132,243
Sept.		93,551	156,216
Oct.		109,043	130,452
Nov.		101,476	129,384
Dec.		72,140	124,360
Total ...		1,244,645	1,602,382

National Electrical Mfrs. Assn.

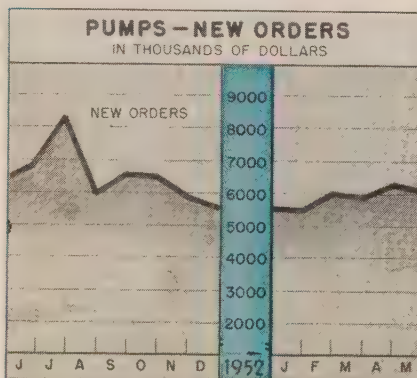


Gas Ranges

Shipments in Units

	1952	1951	1950
Jan.	168,100	260,600	165,000
Feb.	150,400	254,000	209,000
Mar.	180,100	289,800	264,000
Apr.	173,600	225,000	239,100
May	161,100	177,800	242,800
June		128,500	217,000
July		116,400	254,800
Aug.		168,100	331,500
Sept.		183,600	287,000
Oct.		210,900	308,000
Nov.		192,200	269,100
Dec.		145,800	235,900
Total ...		2,348,900	3,023,200

Gas Appliance Mfrs. Assn.



Pumps, New Orders

In Thousands of Dollars

	1952	1951	1950
Jan.	5,517	6,477	2,586
Feb.	6,020	6,480	2,938
Mar.	5,925	7,654	3,313
Apr.	6,354	7,583	3,376
May	6,140	6,371	3,668
June		6,852	4,153
July		8,358	4,080
Aug.		5,911	6,429
Sept.		6,552	5,191
Oct.		6,506	4,985
Nov.		5,908	5,961
Dec.		5,553	6,720
Total		80,175	53,400

Hydraulic Institute.

Charts—Copyright 1952, STEEL

Issue Dates on other FACTS and FIGURES Published by STEEL

Construction	July 21	Gear Sales	July 14	Radio, TV	July 21
Durable Goods	June 23	Gray Iron Castings	June 2	Steel Castings	June 2
Employ., Metalwkg.	June 23	Indus. Production	July 14	Steel Forgings	June 9
Employ., Steel	Apr. 28	Ironers	July 7	Steel Shipments	June 23
Fab. Struc. Steel	July 21	Machine Tools	July 14	Wages Metalwkg.	June 23
Foundry Equip.	July 21	Malleable Castings	June 2	Vacuum Cleaners	June 30
Freight Cars	July 14	Prices, Consumer	July 7	Washers	June 30
Furnaces	July 7	Prices, Wholesale	July 7	Water Heaters	June 30

above generation in the week ended June 14, 1951. In the week ended July 19, electric power generation climbed to 7180 million kilowatt hours, and another rise was estimated for the following week when the radio and TV sets were on again for the Democratic convention.

Steel Turnout Slight . . .

While steel talks came to a standstill, U. S. plants continued to produce only a trickle of steel. Production was only 318,000 net tons steel for ingots and castings in the week ended July 19, the American Iron & Steel Institute estimates. This compares with 316,000 tons produced in the previous week and 240,000 tons produced in the same week in June. In the week ended June 1—just before the strike — the nation's plants produced 2,091,000 net tons steel for ingots and castings.

Range Demand Warmer . . .

Reflecting a slight rise in the demand for heavy appliances, production of gas ranges edged slightly upward in June. Industry shipments of domestic gas ranges totaled 178,900 units in June, reports Gas Appliance Manufacturers Association. This compares with shipments of 161,100 units in May and 173,600 units in April.

Gas water heaters also showed improvement in June. Shipments of domestic gas water heaters totaled 153,100 units in June, compared with 131,500 units shipped in June, 1951. Water heater shipments in June slipped only slightly from the high-for-the-year total of 159,300 units in May, and were only 200 units under April shipments.

Construction Pace Maintained . .

The demand for new construction continued to remain above the year-ago peak levels as the summer months arrived. Awards for new construction in the 37 states east of the Rockies totaled \$1489 million in June, says F. W. Dodge Corp. That compares with the May total valuation of \$1599 million and \$1409 million awarded during June, 1951.

The first six months of 1952

BAROMETERS OF BUSINESS

INDUSTRY

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
Steel Ingot Output (per cent of capacity) ²	15.0	14.5	102.0
Electric Power Distributed (million kw/hr).....	7,180 ¹	6,988	6,974
Bituminous Coal Output (daily av.—1000 tons)....	889	187	1,393
Petroleum Production (daily av.—1000 bbl).....	6,000 ¹	6,075	6,166
Construction Volume (ENR—millions).....	\$295.8	\$381.7	\$361.1
Automobile, Truck Output (Ward's—units).....	32,302	70,592	131,419

TRADE

Freight Car Loadings (unit—1000 cars).....	520 ¹	572	804
Business Failures (Dun & Bradstreet, number)....	103	156	133
Currency in Circulation (millions) ³	\$28,988	\$29,148	\$27,781
Dept. Store Sales (changes from year ago) ³	13%	+4%	-23%

FINANCE

Bank Clearings (Dun & Bradstreet, millions)....	\$16,705	\$14,362	\$15,519
Federal Gross Debt (billions).....	\$263.0	\$263.0	\$254.9
Bond Volume, NYSE (millions).....	\$14.1	\$12.5	\$13.7
Stocks Sales, NYSE (thousands of shares).....	5,468	5,099	6,349
Loans and Investments (billions) ⁴	\$76.7	\$77.5	\$70.1
United States Gov't. Obligations Held (billions) ⁴	\$33.4	\$33.6	\$30.7

PRICES

STEEL's Weighted Finished Steel Price Index ⁵	171.92	171.92	171.92
STEEL's Nonferrous Metal Price Index ⁶	224.6	224.6	226.0
All Commodities ⁷	111.1	110.7	115.0
All Commodities Other Than Farm and Foods ⁷	111.9	111.9	116.8

* Dates on request. ¹ Preliminary. ² Weekly capacities, net tons: 1951, 1,999,035; 1952, 2,077,040. ³ Federal Reserve Board. ⁴ Member banks, Federal Reserve System. ⁵ 1935-1939=100. ⁶ 1936-1939=100. ⁷ Bureau of Labor Statistics Index, 1947-1949=100.

trailed the first six months of the 1951 record-breaking construction volume by 12 per cent. Total for the first half of this year was \$7759 million, compared with \$8808 million awarded during the first half of 1951. Discounting the \$980 million in Atomic Energy Projects awarded last year, the current year is only 1 per cent behind last year.

In the week ended July 17, contract awards for heavy construction throughout the nation totaled \$259.8 million, about 12 per cent above the average 1952 week to date, says *Engineering News-Record*. This total compares with \$381.7 million in the previous week and \$361.1 million in the week ended July 19, 1951. While awards for public construction rose 41 per cent over the average week to date to \$181.6 million, contracts for private construction dropped to \$114.2 million, 16 per cent under the average week to date. Industrial construction sustained the biggest decline of all categories in the week ended July 17, with a total valuation of \$35.9 million, 36 per cent under the average week in 1952.

Less Vacuum in Sales . . .

Reflecting the upturn in demand for household appliances, sales of

vacuum cleaners are edging upward. Factory sales of standard-size vacuum cleaners in June totaled 206,939 units, compared with 194,548 in June, 1951, or a gain of 6.4 per cent, says Vacuum Cleaner Manufacturers' Association. June sales dropped only 4.6 per cent from May, when vacuum cleaner manufacturers sold a total of 216,969 units.

Trends Fore and Aft . . .

Business failures rose 5 per cent to 671 in June, but were still below casualties in June, last year . . . Bank clearings rose 7.6 per cent above the same week last year in the week ended July 16 . . . Shipments of gas-fired heating equipment (furnaces, boilers and conversion burners) in June were 46 per cent above shipments in June, 1951 . . . Marketed production of natural gas in the first quarter increased 13 per cent above the same period in 1951 . . . Class I railroads installed 1373 locomotives in the first half of 1952. All were diesels except 8 steam and one electric . . . Individual savings in liquid form totaled \$2.7 billion in the first quarter, the highest rate of savings for the quarter since World War II . . . Loans to metalworking companies declined by \$28 million in the week ended July 9.

For Fast Dependable WAREHOUSE SERVICE

Rely on **VIKING**

- COLD FINISHED BARS—Rounds Hexagons, Flats and Squares
- ALLOY COLD FINISHED BARS
- HOT ROLLED BARS—Rounds Flats and Angles
- STRUCTURALS—Channels Angles and Beams
- HOT ROLLED PLATES
- ABRASION RESISTING PLATE
- HOT ROLLED AND COLD ROLLED SHEETS
- HOT ROLLED STRIP
- YOLOY PRODUCTS—Angles Flats, Plate and Sheets
- DEFORMED REINFORCING BARS
- WELDED WIRE MESH
- SOFT BLACK ANNEALED WIRE
- BRIGHT BASIC WIRE AND WIRE RODS
- WIRE ROPE AND FITTINGS

VIKING

STEEL COMPANY

16700 St. Clair Ave.

CLEVELAND 10, OHIO

1003 Fisher Bldg., Detroit 2, Mich.

STEPPED-UP QUALITY

Use Ohio Rolls to step up your mill production.
Choose from 11 types of Ohio Iron and Steel Rolls:

Carbon Steel Rolls

Ohioloy Rolls

Ohioloy "K" Rolls

Holl-O-Cast Rolls

Chilled Iron Rolls

Denso Iron Rolls

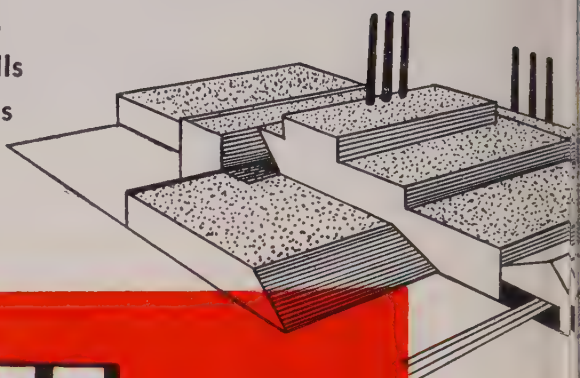
Nickel Grain Rolls

Special Iron Rolls

Nioly Rolls

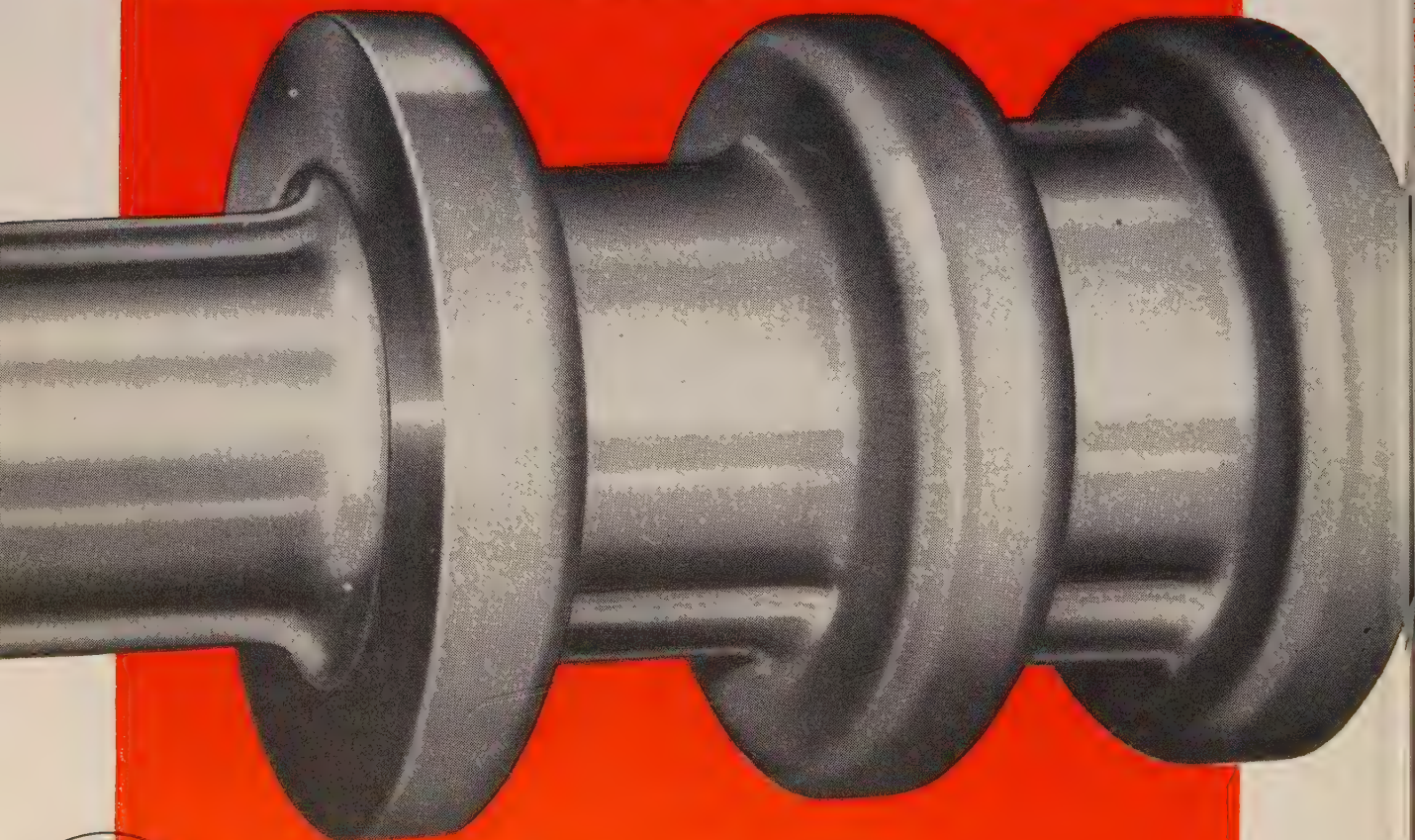
Flintuff Rolls

Ohio Double - Pour Rolls



Ohio Rolls

SHAPING METAL FOR ALL INDUSTRY



THE OHIO STEEL FOUNDRY CO.

LIMA, OHIO • PLANTS AT LIMA AND SPRINGFIELD, OHIO

Men of Industry



ARTHUR C. BRYAN
... National Carbon V P.-sales

Arthur C. Bryan was appointed vice president in charge of sales for **National Carbon Co.**, a division of **Union Carbide and Carbon Corp.**, New York. He has been with **National Carbon** in various sales activities since 1935, and since 1949 has been general sales manager.

Charles H. Shiro was elected vice president in charge of pig iron and oil field tubular goods and equipment divisions of **Kurt Orban Co. Inc.**, New York.

James F. Puhl was named assistant sales promotion manager, **Follansbee Steel Corp.**, Pittsburgh. He has been with **Ketchum, MacLeod & Grove Inc.**, and previous experience includes 16 years in the metallurgical department of **U. S. Steel Corp.**

Forrest R. Old is now assistant sales manager, **Peninsular Grinding Wheel Sales Corp.**, Detroit.

S. D. Fitzpatrick was appointed assistant to the president, **Anaconda Wire & Cable Co.**, New York. Other appointments include **C. H. Porter** and **M. J. McCarthy** as assistant sales managers; **A. W. Koch** as manager of sales, magnet wire products; **C. B. Peck**, manager of sales, rubber and plastic insulated products; **J. L. Tindale**, manager of sales, bare and weatherproof-power cable and accessories; **A. W. Tracy**, new district manager, Los Angeles office; and **K. G. Eaton**, district manager, Denver office.



H. C. BURRELL
... Columbia-Geneva mgr., raw materials

H. C. Burrell, chief geologist for the exploration party which discovered the **Cerro Bolivar** iron ore deposits in **Venezuela**, was appointed manager of raw materials development for the **Columbia-Geneva Steel Division**, **U. S. Steel Co.**, with headquarters in **San Francisco**.

Jack Canady was appointed sales promotion manager, **Palmer Mfg. Corp.**, Phoenix, Ariz. For the last two years he has been secretary-manager of the **Appliance Merchandisers Association**.

James K. Lacy, formerly manager of the Washington office for **Sheffield Steel Corp.**, was appointed purchasing agent for the company's **Houston** division.

Henderson E. McPherson, formerly assistant manager of sales for **Republic Steel Corp.'s** **Union Drawn Steel Division**, **Massillon, O.**, has been made assistant district sales manager of the corporation's **Pittsburgh** sales office.

Erie Foundry Co., **Erie, Pa.**, appointed **James A. Currie** vice president and general manager, **Macdonald S. Reed** vice president and chief engineer.

Bert L. Snell was promoted from project manager to assistant general sales manager, **Luria Engineering Co.**, a division of **Luria Steel & Trading Corp.**, New York. He will have headquarters at the concern's fabricating plant in **Bethlehem, Pa.**



ARCH MORTON
... returns to Morton Machine Wks.

Arch Morton, head of **Morton Machine Works**, **Ferndale, Mich.**, resumes active direction of the firm after a year's leave of absence. **Paul W. Taylor** joins the company as manager. He was with the **Cadillac tank plant** in **Cleveland**, in charge of special assignment.

Warner Gear Division, **Borg-Warner Corp.**, **Muncie, Ind.**, elected **E. Swain Russey** as president to succeed **A. P. Emmert**, retired from active management after 25 years with the division. Mr. Emmert continues as vice chairman of the supervisory board and in an advisory capacity, and also remains a vice president of **Borg-Warner**. New vice presidents of **Warner Gear** are **T. J. Ault**, **W. H. Cortwright**, **J. C. Oesterle** and **A. W. Rose**.

U. B. Wolff, for 12 years with **Stern Morgenthau & Co. Inc.**, was appointed manager of the metals division of **Forex Commodity & Trading Corp.**, New York. He will conduct import and export business of ferrous and nonferrous products.

Dow Chemical Co., **Midland, Mich.**, announces changes in its research staff. **L. C. Chamberlain**, manager of research for its plastics department, was named assistant to the director of research. He is replaced by **Raymond F. Boyer**, and **Dr. W. C. Bauman** succeeds Mr. Boyer as director, physical research laboratory.

John J. O'Neill Jr. becomes man-

ager, research and development department, explosives division, Olin Industries Inc., East Alton, Ill.

Dr. J. H. Findlay was appointed manager, power and special tube engineering, Electronic Tube Division, Westinghouse Electric Corp., Elmira, N. Y. He joined Westinghouse in 1933 as an x-ray tube engineer in the Lamp Division.

Hubert C. Laird, former vice president, Otis Engineering Corp., is now associated with Crane Co. as a field engineer to expand company operations in the petroleum industry. He will be located in Chicago.

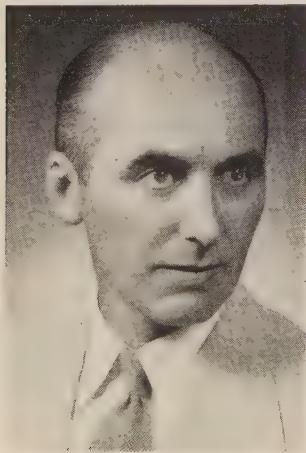
Donald A. Hilliard was appointed supervisor of quality control for General Electric Co.'s chemical division alkyl resin plant at Schenectady, N. Y.

George J. Zipf was appointed Chicago district manager, sales and service, for Raytheon Mfg. Co.

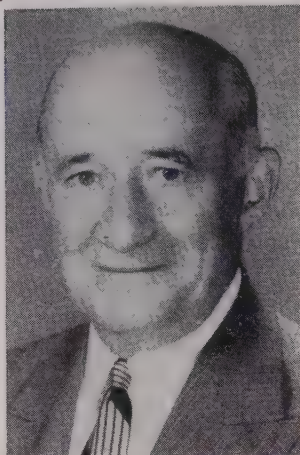
Galvanic Products Corp., New York, appointed **Earl Steiker** general manager of its rectifier division.

Irvin E. Frey was appointed manager, foundry division, Fischer & Associates, consulting engineers, Cleveland. He most recently was retained by Mohawk Foundries Inc.

Herbert B. Jeffrey was promoted to assistant vice president and assistant treasurer, Great Lakes Steel Corp., Ecorse, Mich. In his new capacity Mr. Jeffrey is assigned additional executive responsibilities to those he has performed since 1949 as assistant to the president.



HERBERT B. JEFFREY
... promoted at Great Lakes Steel



J. D. SWAIN
... Electro Metallurgical exec. V. P.



E. H. MANGAN
... Electro Metallurgical exec. V. P.

J. D. Swain and **E. H. Mangan** were appointed executive vice presidents, Electro Metallurgical Co., a division of Union Carbide & Carbon Corp. Both have been with the division for many years, Mr. Swain associated with sales activities and Mr. Mangan with engineering, power and production.

James B. Armstrong was appointed credit manager, Spang-Chalfant Division, National Supply Co., Pittsburgh. He succeeds **Alvin D. Lowdermilk**, retired.

S. C. Williams was appointed general field sales manager and **Walter W. Kempfert**, Midwest district manager, Pyrene Mfg. Co., Newark, N. J.

Hooker Electrochemical Co., New York, promoted **Harvey R. Engle** to works chemist of the Works Laboratory, a position formerly held by **Burr H. Ritter**, retired.

Johnstone S. Mackay was appointed

ed a supervisor in the research and development department of Pittsburgh Coke & Chemical Co., Pittsburgh. For the last ten years he has been with American Cyanamid Laboratories.

Worthington Corp. appointed **F. E. Peltier** manager of central regional engineering and service, with offices in Cleveland.

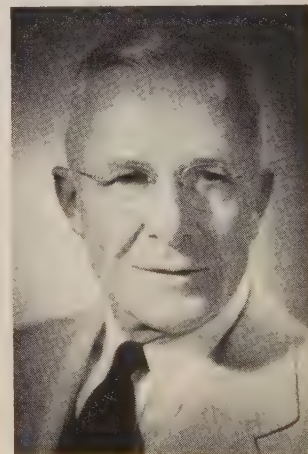
Howard Heiser and **Earl L. Simanek** were appointed assistant district managers of United States Steel Supply Division, Chicago, U. S. Steel Co. **Arthur Johnson** remains as assistant Chicago district manager.

Michael Anthony, formerly with Remington Arms Co., was appointed production manager of Rem-Cru Titanium Inc., Midland, Pa.

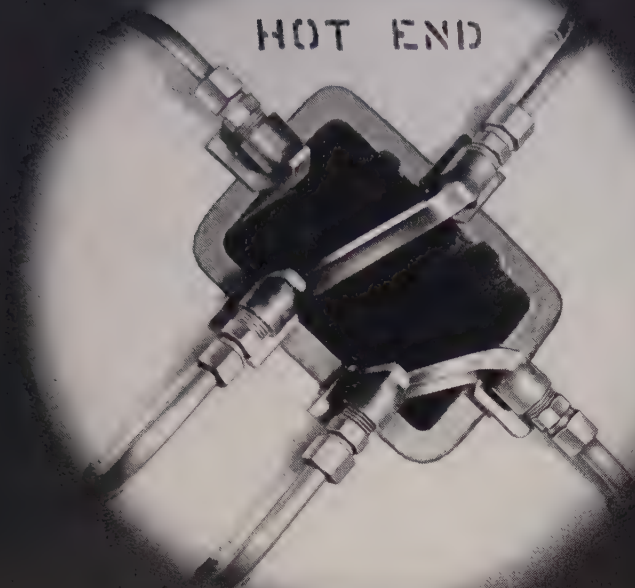
John A. Riley becomes secretary and treasurer, Timken Roller Bearing Co., Canton, O., to succeed the late **R. C. Brower**.

J. Elton Schoner, formerly assistant to the vice president-sales, Seiberling Latex Products Co., has joined Duchess-Appliance Mfg. Co., Alliance, O., as assistant sales manager.

National Screw & Mfg. Co., Cleveland, promoted **S. M. Washabaugh** to director of sales research of the entire company which includes Hodel Chain and Chester Hoist Divisions. He will be located in Cleveland. Mr. Washabaugh has been in charge of the West Coast subsidiary. **Howard McBurney** was elected vice president and **E. H. Jones** vice president in charge of



S. M. WASHABAUGH
... heads sales research, Nat'l. Screw



The Superior Tube That Keeps Its Temper In A Hot Spot

Producing tubing and tubular parts that stand up well even when the heat's on is a Superior specialty.

One of these parts is shown above. It is a guide rail for a TOCCO† induction hardening furnace, manufactured by The Ohio Crankshaft Co., a Superior customer.

This simple tube has to be tough. Constantly exposed to high heat, it must retain its temper, stay hard. Continually abraded by the scrubbing action of the 25 pound hot-rolled steel slugs that ride along it, it must require infrequent replacement. In addition it must not crack when brazed, or develop cracks in use.

Reading this list of requirements would suggest that the guide rail must necessarily be a brute-strong, thick-walled,

heavy-weight. It isn't—it is a $\frac{3}{8}$ " square Inconel* tube with a wall only .065" thick. It is another example of fine, small tubing that does a big job well.

Producing it presented a problem—but just the type of problem we like to meet and can almost always solve. We have the right combination of engineering, research and production facilities that makes it easy for us to work closely with our customers' designers and engineers, and to produce the tubing required to fit the most exacting specifications.

If you use small tubing and have a problem it might be well to check with us. We can probably help and will be glad to do so. Write Superior Tube Company, 2005 Germantown Ave., Norristown, Pennsylvania.

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E-52100

Stainless Steels:

A.I.S.I.—303, 304, 305, 309, 310, 316, 317
321, 347, 403, 410, 420, 430, 446, T-5

Nickel Alloys:

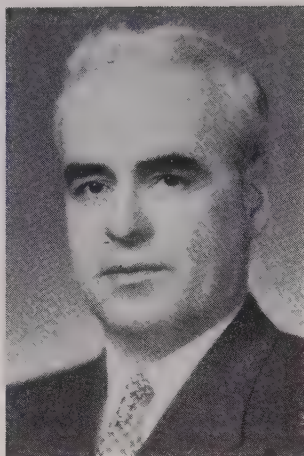
Nickel, "D Nickel"*, "L Nickel"**, "Monel"**,
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H. B. PHILLIPS
... Cutler-Hammer quantity sales mgr.



F. A. WRIGHT
... Cutler-Hammer mgr., district sales



J. M. COOK
... Cutler-Hammer sales, indus. control

manufacturing of National Screw & Mfg. Co. of California.

F. O. Humberger Jr. was elected president, **Massillon Steel Casting Co.**, Massillon, O.

Arthur E. Stevenson, assistant to the general manager, research division, **Continental Can Co.**, New York, retired after 26 years with Continental.

Carboloy Department, Detroit, General Electric Co., appointed **V. H. Dearle** manager, Michigan district, with headquarters in Detroit; **Robert Grorud** as Alnico specialist, handling the sale of permanent magnets in the midwestern district with headquarters in Chicago; and **E. R. Almdale** as manager, Atlantic district, with headquarters in Newark, N. J.

Henry W. Bauer was elected to the board of directors, **American Cladmetals Co.**, Carnegie, Pa.

Cutler-Hammer Inc., Milwaukee, appointed **H. B. Phillips** sales manager, quantity sales division, which comprises heating device sales, refrigeration control sales and small motor switch sales; **F. A. Wright**, sales manager, district sales; and **J. M. Cook**, sales manager, industrial control divisions.

J. Daniel Johnson was appointed sales representative for **Fageol Heat Machine Co.**, Detroit. He covers eastern New York, eastern Pennsylvania, Connecticut, Massachusetts and New Jersey. His headquarters will be in Pleasant Valley, N. Y.

Chester Blast Furnace Inc., Chester, Pa., elected **Rudolph Eberstadt** president, **J. A. Sisto** chairman of the board of directors and vice president; **Wade H. Oldham** vice president and general manager, **William F. Zerbe** vice president, **Ernest C. Wilson** secretary and treasurer, **Robert F. Danley** assist-

ant secretary and assistant treasurer, and **Irving M. Smith** assistant treasurer.

Helmut Thielsch, formerly of the **Welding Research Council**, was appointed director of applied welding engineering at **Eutectic Welding Alloys Corp.**, Flushing, N. Y.

Dr. George S. Bachman was appointed director of research for **Pittsburgh Plate Glass Co.'s** new fiber glass division, and will have headquarters at Shelbyville, Ind.

Albert F. Schwarz was appointed financial vice president, **Dalmo Victor Co.**, San Carlos, Calif.

Harvey O. Edson was named controller of **Illinois Tool Works**, Chicago.

Lockheed Aircraft Corp., Marietta, Ga., appointed **Victor A. McNabb** manager of purchasing operations, succeeding **L. A. Thompson**. **Charles G. Monro** was appointed supervisor of personnel records.

OBITUARIES...

Louis C. Huck, president, **Huck Mfg. Co.**, Detroit, died July 9.

W. G. Pearce, 93, who retired in 1950 as chairman of the board of **American Brake Shoe Co.**, New York, died July 15.

Harold A. Carle, 51, for 16 years a sales representative working out of Chicago for **H. K. Porter Inc.**, died July 15 on a business trip in Denver.

Howard L. Dingler, 53, assistant director of purchases, **Chevrolet**

Motor Division, headquartering at the gear and axle plant, Detroit, General Motors Corp., died July 3. He had been on leave of absence since 1950.

Martin G. Basch, 71, chief engineer, **Easton Car & Construction Co.**, Easton, Pa., died July 14.

Sylvester Young, 80, superintendent, **National Iron Works**, Toronto, Ont., died July 11.

Everett L. Wyman, 58, executive secretary, **National Heating Wholesalers Association Inc.**, died July 19 in Cleveland. During the war

he was head of the steel warehouse division of OPA and prior to World War II was vice president, **Clayton Mark & Co.**, Chicago.

Clarence R. Elmer, 63, former superintendent of the testing department of the laboratory of **Erie Forge & Steel Co.**, Erie, Pa., died July 16. He retired two years ago.

Frank F. Rowell Sr., 75, president, **Guardian Electric Mfg. Co.**, Chicago, died July 20.

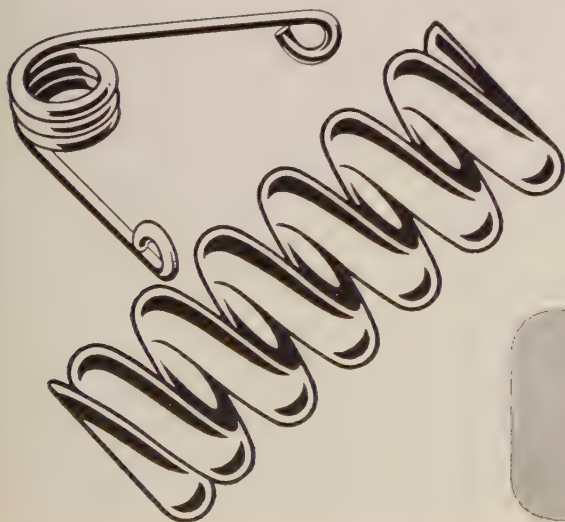
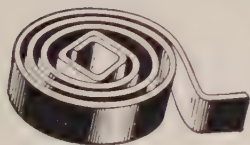
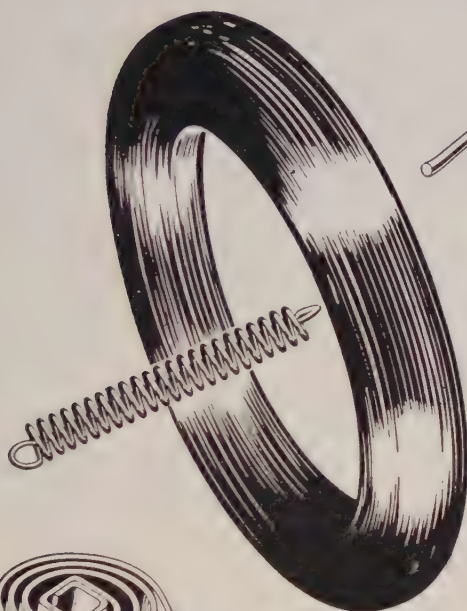
Arthur E. McClintock, 77, who retired in 1945 as commissioner of the **National Foundry Association**, Chicago, died July 18.

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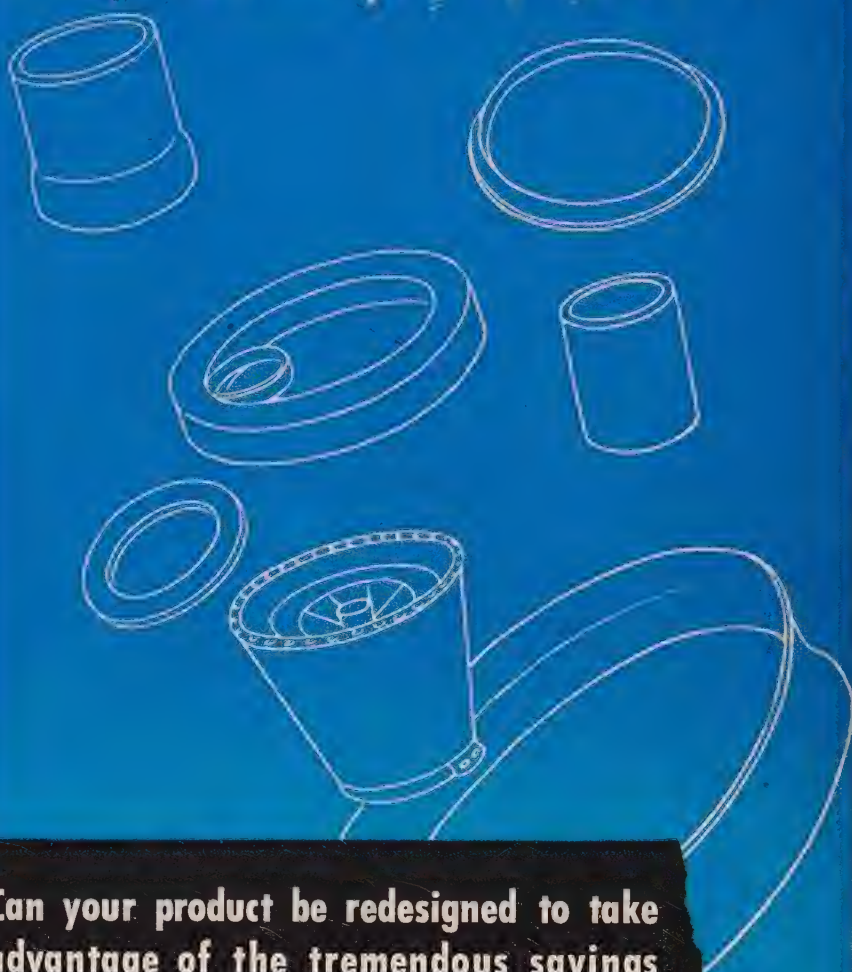
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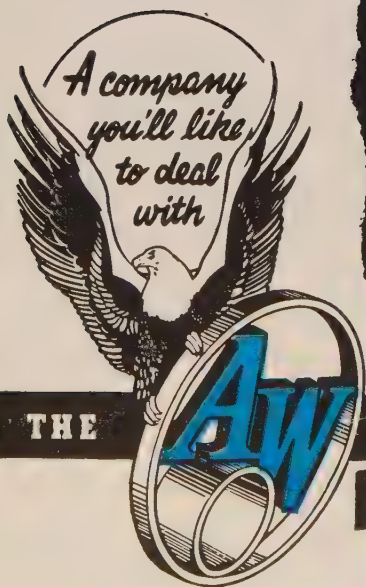


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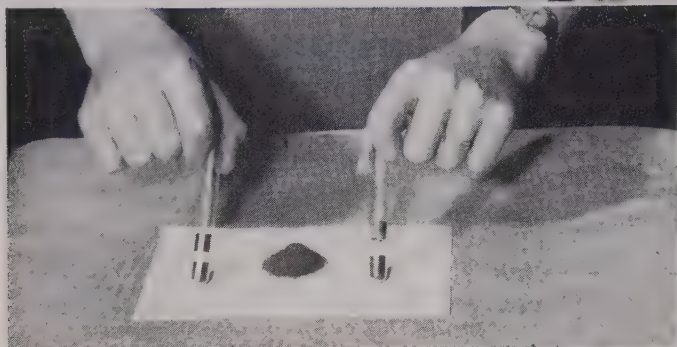
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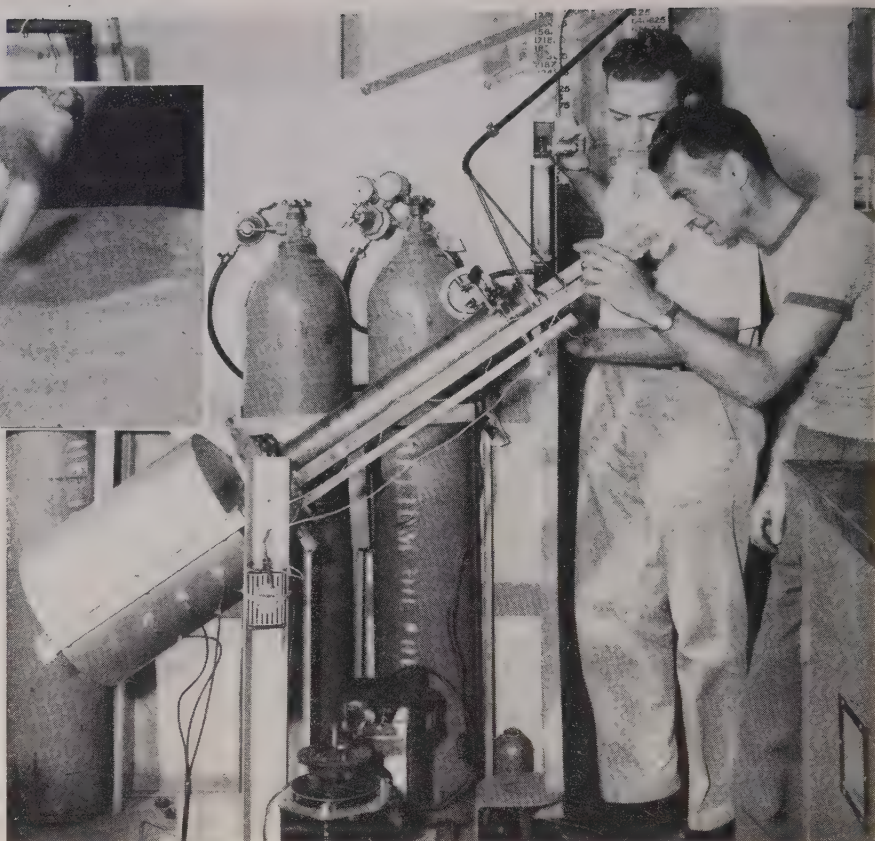
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FOR PROMPT QUOTATIONS



Difference in space between magnets in the two tubes shows the difference in force of magnets. Magnet in tube at right is Bismanol; other is a commercial type of magnet. Center, a small pile of pulverized Bismanol

Right—Rotary furnace developed for preparation of Bismanol at the Naval Ordnance Laboratory, White Oak, Md.



Navy Develops New Permanent Magnetic Material

Alloy of manganese bismuthide and unreacted manganese and bismuth has a coercive force of 3000 oersteds. Magnets are made by powder metallurgy techniques

A MAGNETIC material which exhibits a coercive force of 3000 oersteds, the highest recorded coercive force of any known permanent magnetic material has been developed in Naval Ordnance Laboratory's Magnetism Division. It is called Bismanol from its composition of bismuth and manganese and NOL where it was prepared.

Navy engineers say that because of this high coercive force, Bismanol exceeds any other permanent magnet, except the platinum-cobalt alloy, in available flux density in short magnets where length to diameter ratio is one or less. Since magnets of the new material are made by the powder metallurgy technique, complicated shapes can be processed to close tolerances without requiring machining.

In modern civilization where

electronics and electronic applications are accepted as a part of everyday life, permanent magnets are being used more and more. In radio and sound equipment such as loudspeakers, head phones, hearing aids, and radio detecting and measuring devices they are necessary components. They are also used in control equipment, especially for temperature control. In industry they are found in magnetic separators, magnetic chucks and in a host of other applications. These are but a few of their widespread applications.

Ersatz Material — Manganese bismuthide was prepared as part of a search for a magnetic material not containing nickel or cobalt and which could be compacted in the form of fine particles to form permanent magnets. This

particular combination of materials was chosen by the NOL researchers because of its potentially high magnetic crystal anisotropy, or in other words its possession of an axis along which magnetism is very easy as opposed to one or more axes along which it is difficult. Permanent magnets are made taking this characteristic into account and aligning the crystals insofar as possible in the direction of easy magnetism.

Among the problems faced by Navy researchers were those of the original preparation of the material in large enough quantities to be usable, of grinding it without changing its properties through oxidation or other side effects, and ultimately of compacting it into the desired shapes with the proper magnetic alignment.

Mixed and Cooled—Both bismuth and manganese are nonmagnetic when alone. In the preparation of the magnetic alloy, powdered manganese and powdered bismuth are mixed and heated to

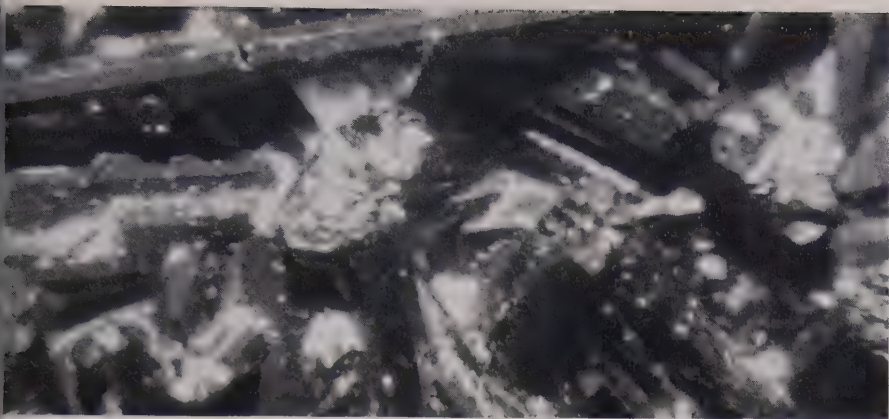


Photo of Bismanol crystals. The new magnetic alloy consists of the inter-metallic compound, manganese bismuthide and unreacted manganese and bismuth

about 700° C and aged at that temperature for from 8 to 16 hours. The alloy then consists of the intermetallic compound, manganese bismuthide, and unreacted manganese and bismuth. It is at this stage that the first crystals of the intermetallic compound ever to be recorded were grown.

To get the enriched bismuthide from the mixture the material is ground and the magnetic portions separated from the nonmagnetic metals by a magnetic separator. The magnetic portion is then hot pressed at a temperature of 300° C in a double acting floating die in the presence of a strong magnetic field. The latter is used to

align the particles along the direction of easy magnetism.

Compares to Alnico—Magnets made in this manner not only show high coercive force but also have a maximum energy product comparable with Alnico magnets (3×10^6 gauss-oersteds) and a Curie temperature of 350° C. No technical evaluation with respect to temperature, stability, aging, shock, etc. is available. There is a theoretical possibility of further improvement in the maximum energy product of the manganese bismuthide and it is expected to become one of the most useful of the magnetic materials suitable for permanent magnets.

Strain Gages Check In-Flight Rotor Stress

MEASUREMENT of major strains in helicopter rotor blades while in flight is among routine procedures now used at Piasecki Helicopter Corp. The practice is essential for checking performance of new types and sizes of rotors against their design strength and the actual maximum stresses to which they may be subjected in flight.

Distribution of stresses in each blade, their magnitude, direction and frequency are all measured while the rotor is turning to drive the helicopter. At the same time, blades are undergoing both cyclic and pilot-controlled changes of pitch and direction to guide the helicopter. In forward flight, the three blades of each rotor are changing pitch constantly, each going through a rotational cycle of pitch variation regulated by the pilot for partial control of the di-

rection of movement of the helicopter.

Reactions Unaffected — Strain measurements are conducted through use of Baldwin SR-4 bonded resistance wire strain gages. More than 50 of these gages and a wiring harness are bonded to a single rotor blade without appreciably affecting blade reactions through increase in weight or blade contour.

Main problem is to carry the very small electric currents between moving strain gages and stationary instruments in the cabin of the helicopter without loss from resistance drops or scrambling. This is done with specially-designed slip rings that minimize contact resistance and resistance variations during sliding contact.

Gages are usually bonded to the blade at 13 locations, with four

gages at each station. Eleven stations are used to measure the bending strains produced in flap by vertical stresses. The other two stations are selected for measuring torsional strains and fore-and-aft bending strains in the blade spar.

Steel Blades Under Test—Rotor blades are of two general types, both built around a steel spar tube. Lightest weight blade is made with a wooden frame covered with thin plywood. Steel blades, now being tested for military and naval service, have ribbed aluminum alloy stiffeners supporting stainless sheet steel wrapped around the frame to form the blade. On wood-frame rotor blades all gages are bonded to the steel spar tube. On steel blades 10 of the 13 gage positions are on the steel skin of the blade over the spar tube.

Before flight tests, blades are subjected to static tests in the Piasecki laboratory. These tests include bending, torsion and fatigue and serve partially for calibration of instruments.

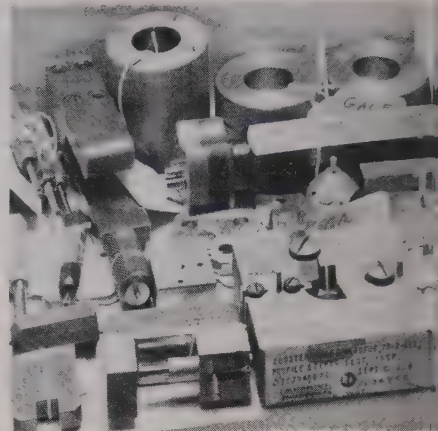
Natural Frequency—In fatigue tests, the blade is made to vibrate at its natural frequency — about 1500 cycles per minute with an amplitude of about 2 inches at its center while the two ends are held. A special test setup is provided to determine harmonic loadings and rotor stress cycles. The oscillograph is particularly valuable in this phase for interpreting results.



FLIGHT TEST FOR ROTOR STRAIN
... 50 gages bonded to one blade



Two dandy profiles—one at the right aided by the glamorous one inspects all 41 dimensions of the rotor component in approximately 40 seconds



These 27 gages needed to inspect rotor part by mechanical method. Two sets are required by a contractor. Photos courtesy of Eastman Kodak Co.



This rotor component for an artillery shell booster requires 41 dimensional checks for 100 per cent checking. Optical gaging does it in three motions

ONLY THREE OPERATOR MOTIONS

Optical Gaging Checks 41 Dimensions in 40 Seconds

Army, civilian ordnance experts meeting at West Point shown how inspection method makes short work of checking rotor part for an artillery shell booster

WHEN Eli Whitney, in 1798, began to manufacture muskets with standardized parts, he started a trend that placed an ever increasing burden on process engineers and tool makers designing and making mechanical gages for ordnance inspection.

Today — 154 years later — at a time when the nation's industrial output is burdened by additional production for defense, the problem has become acute. It was the subject of a recent meeting of the

gaging committee of the Army Ordnance Association at West Point.

What To Do—The discussion: What to do about speeding up inspection procedures. One answer was optical gaging. Both Army and civilian ordnance engineers were shown a setup that graphically compared mechanical with optical gaging in the case of a rotor part for an artillery shell booster.

The part, requiring 100 per cent

inspection, included six dimensions carrying a tolerance of 0.0003-inch, 19 dimensions with a tolerance of 0.0002-inch, 15 dimensions with a tolerance of 0.0001-inch and one with a tolerance of 0.0007-inch.

To inspect the rotor part completely by mechanical methods, 27 gages and an experienced man to do the job are required. By optical gaging, one contour projector with an appropriate fixture and chart gage, does the trick in one operation in about 40 seconds.

Only Three Notions—In inspecting the rotor part on an optical comparator, the ordnance experts were shown how the holding fixture used allowed the part to be

COMPARISON CHART FOR ROTOR PART INSPECTION

	Mechanical Gaging	Optical Gaging
Number of gages to perform required inspection of one piece.....	27	1
Engineering time for gages	380 hours	65 hours
Manufacturing time for gages	475 hours	150 hours
Surveillance inspection of gages	40 hours	negligible
Piece inspection time, 1 operator working all gages.....	4 minutes	40 seconds

held in three positions for complete inspection. They were also shown the only parts of the staging fixture on which wear is effective, and how these can be checked for size with a micrometer without disturbing the position of the gage on the projector.

Visitors were shown how changes in tolerances or dimensions on the chart gage are quickly and inexpensively made compared to similar changes on mechanical gages. It was also pointed out that in addition, the initial cost of a chart and holding fixture is substantially less than a set of mechanical gages required to do the same job.

Engineers at the meeting were reminded that optical gaging, in its simplest form, is the comparison of an enlarged image of a part with a transparent chart gage laid on a screen. Accuracy is inherent since magnification is by precisely known ratios, and the light beam cannot deform the part being inspected.

The Cost Factors—The contour projector itself represents a capital investment, but with appropriate fixtures and chart gages, it can be used on any number of different inspection and measurement operations so its cost can be spread over many jobs.

In the case of the rotor part, the total cost of fixture, chart, and projector was still less than the cost of one set of mechanical gages. Few parts are too small for optical gaging, and parts as large as a 400-pound breech block can also be handled.

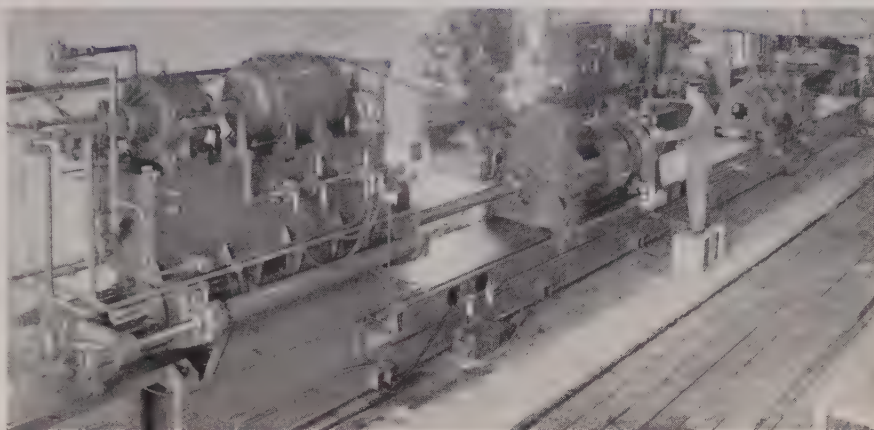
Parts Easy to Get—Dimension-transposing bars, levers, and pantographs permit simultaneous viewing of all dimensional variations, even on large objects. Chart gages and fixtures are readily available from firms specializing in their manufacture.

The accompanying table shows time involved in gage manufacture and part inspection for both mechanical and optical gaging of the rotor part used as an example at

the West Point meeting.

In the national re-armament program, the time saved by optical

gaging is of considerable importance. The figures are even more impressive when multiplied by the number of contractors making the part. In addition, each contractor would normally need two sets of mechanical gages—one on the production line while the second set is being checked, re-adjusted, and repaired.



TAKES THE WRINKLES OUT OF STAINLESS STEEL BARS
... quick change dies permit wide work range

Stretcher Improves Physical Properties of Stainless

STRAIGHTENING, detwisting and metal conditioning of stainless steel bars at Allegheny Ludlum steel Corp.'s plant in Watervliet, N. Y., will be performed by a 100-ton hydraulic stretcher built by Sutton Engineering Co., Bellefonte, Pa.

The machine is the first ever built by Sutton for a ferrous application of this type although the company has built many stretchers for nonferrous uses.

Weighing 73,000 pounds the unit operates on hydraulic pressure of about 2000 psi. Minimum length of work that can be handled is 5 feet and the maximum length is 40 feet. Jaw opening is large enough to handle any shape whose cross-section will fit into a 4-inch diameter circle.

Bars: Bulk of Work—On the specific job for which the machine was designed, bars will constitute the bulk of the work handled but other shapes such as complicated extrusions require only a simple die change. Flats, bars, tubes, rounds and extruded shapes are all within the machine's work range.

To change a die a wrench made

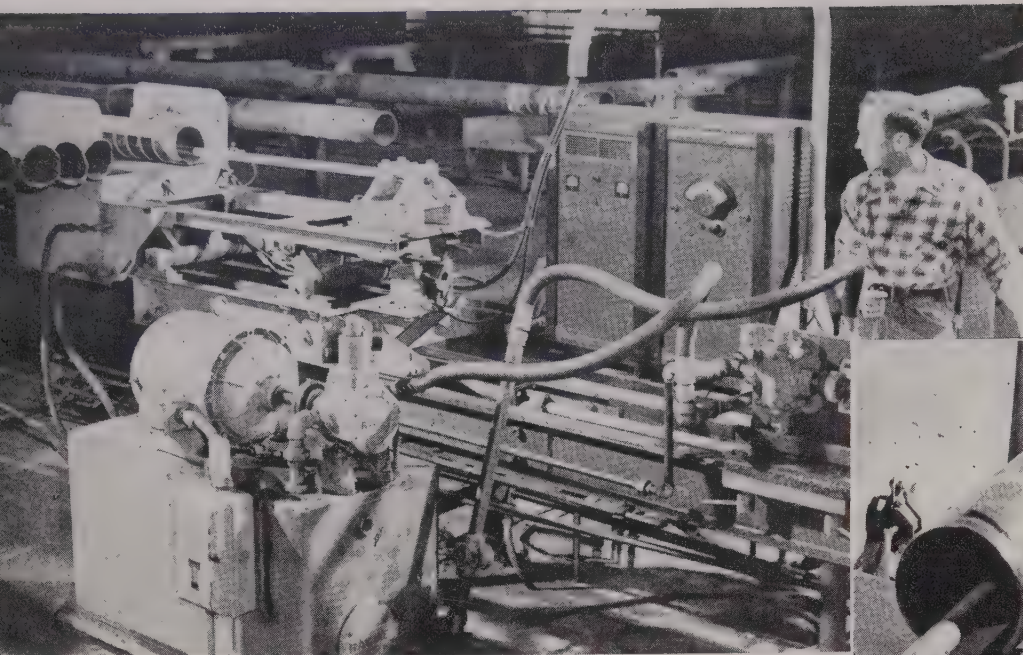
from a short piece of round is inserted into a hole, twisted 90 degrees and the die is lifted straight out. Dies can be interchanged in 2 to 5 minutes, depending on the operator's skill.

Jaws of the die are air-cylinder actuated and mounted on taper ways. The mounting method means the harder the material is stretched, the tighter the stock is gripped.

The Speeds—Stretching speeds include a 0 to 2.1-inch per second working stroke, a 0 to 10.7-inch per second idling stroke and a 0 to 10.8-inch per second returned speed. Pump motor is 50 hp, detwisting motor is 7.5 hp with a 3 rpm rotating speed and tailstock motor is a 2 hp gear motor.

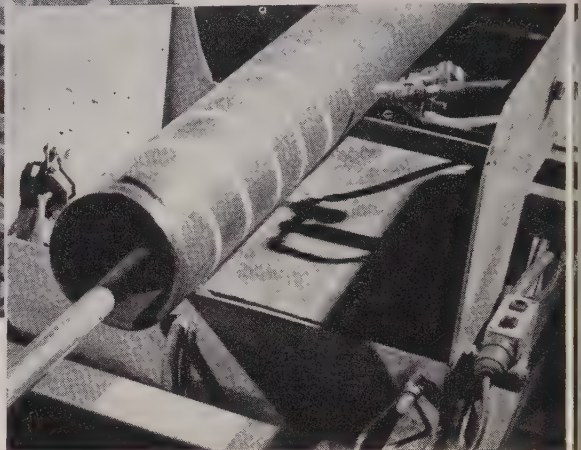
When installed in Allegheny Ludlum's plant, the machine will be served by a work manipulator to cut handling time.

Units such as this stretcher are made for large ferrous and nonferrous producers by this small Pennsylvania company. Although it employs less than 75 persons, Sutton specializes in making large equipment for the corporate giants.



Here the generator and pickup tube are mounted on hydraulically operated carriage that is manually controlled and aligned closely with the rotating jack rolls

Probe unit, in which pickup tube is mounted, passing into open end of pipe



SAVINGS IN SEAMLESS PIPE

X-Ray Gages Show Crop Point Accurately

Instrument's radiant beam provides precision, continuous indication of seamless steel pipe wall thickness for determining correct crop length

X-RAY operated gages are proving satisfactory in determining correct crop length of seamless steel pipe. Spang-Chalfant Division, National Supply Co., reports installations at its Ambridge, Pa., plant have effected considerable savings in material and labor.

These instruments are high precision, noncontact, continuously indicating electronic micrometers that check wall thickness, automatically marking undergage areas for determining the crop point. They check thicknesses from 0.050 to 1.500-inch within an accuracy of 1 per cent. Pipe with inside diameters of 3 inches or larger is the standard application, but special probes can be made for smaller diameters.

Varied Crop Lengths—Cutting off or cropping the ragged, irregular ends inherent in manufacture

is one of the important seamless pipe finishing operations. Excessive eccentricity near pipe ends causes wall thickness variations and any area that falls below the minimum wall must be cut away.

Correct crop length may vary in a single rolling from a few inches to several feet. Without an accurate device to determine this strength, cropping becomes a hit-or-miss proposition—often a costly one. If insufficient crop is taken, the pipe must be recut at a considerable increase in cutting time and cost per ton of finished product. If overcut, the extra crop wastes good material.

Sequence of Operations—In the sequence of mill operations, x-ray gages are located immediately beyond the roll straightener. Pipe coming from the straightener is conveyed to a stop aligned with

the first gage, then kicked out one to skids. Manually controlled jack-rolls pick up and rotate the pipe at 60 to 120 rpm.

X-ray equipment consists basically of a generator, enclosed in a ray-proof, shockproof housing and a pickup unit mounted in a probe tube. This assembly moves on a hydraulically-operated but manually controlled buggy, aligned closely with the jack rolls.

Electrical Signal — Generator radiates an x-ray beam about $\frac{3}{8}$ inch diameter through the steel pipe wall. As the probe tube is passed into the tube's open end, the pickup unit receives the beam and converts it into an electrical signal. This is amplified to actuate an indicating meter and automatic servomechanism. Mechanism sprays paint on the outside of the pipe at any point where wall thickness is less than predetermined standard at which the instrument is calibrated.

After a check at one end, pipe is conveyed to another gage at the

opposite end of the skids. There the second end is checked in similar manner.

Buggy's forward speed is sufficient to assure gaging at a rate of about 2 inches per second. Probe checks each pipe end to maximum

5-foot length. Industrial Gages Corp., Englewood, N. J., designer and manufacturer of Spang-Chalfant's gages, says even longer probes are possible. The governing factor is deviation from horizontal due to overhanging weight.

Aluminum Fuel Tanks Are All-Welded

Drop tanks for combat aircraft are made without rivets. Streamlined cylinders have no longitudinal members and few bulkheads. Over 30,000 welds involved

TORPEDO-LIKE structure which will pack large quantities of fuel is fabricated by Ryan Aeronautical Co., San Diego, Calif. Cylindrically-shaped, with tapered nose and tail domes, the fuel cells are aerodynamically smooth. More than 30,000 electric spot welds are used to join the aluminum alloy sheets. The tanks have few components. No longitudinal members and very few bulkheads are used in the design.

Electrical resistance welding is employed as the principal joining method. All circumferential joints are closed with two rows of spot welds and one row of seam welding to accomplish a gas-tight seam. The single longitudinal seam, running through the individual tank sections, is fusion-welded on automatic Heliarc welding machines. This provides a seam which is no thicker than the metal itself and does not require splice plates.

Production Problems — Tank posed a number of problems for

production. First, the size of the structure exceeded standard welding equipment dimensions. Second, the alloy selected did not respond satisfactorily to commercial cleaning compounds so that an acceptable surface resistance would be obtained for certified spot welding. Third, requirements called for containers to be gas-tight by welding alone.

To handle the welding tasks Ryan installed four pairs of seam and spot welding machines. With a 60-inch throat depth these welders handle the work 62 inches from the floor. They can fire 120,000 amp between sheets which are squeezed together with 10,000 pounds pressure. They can produce more than 200 spot welds per minute and cram nine of them into a running inch.

Special equipment was needed to feed the work to the welding machines. To do this, tank sections

are loaded on steel dollies by means of an overhead monorail system, using electric hoists. The dollies are rolled to the welding equipment on steel tracks which are located to feed into each machine. Rotation of the circular sections is accomplished by rollers in the dollies and a hydraulic cylinder is installed in each dolly to swing the sections from one side to the other, at one end. Connected to the head control it is possible to yaw tapered sections as they are rotated and produce straight weld seams over tapered surfaces.

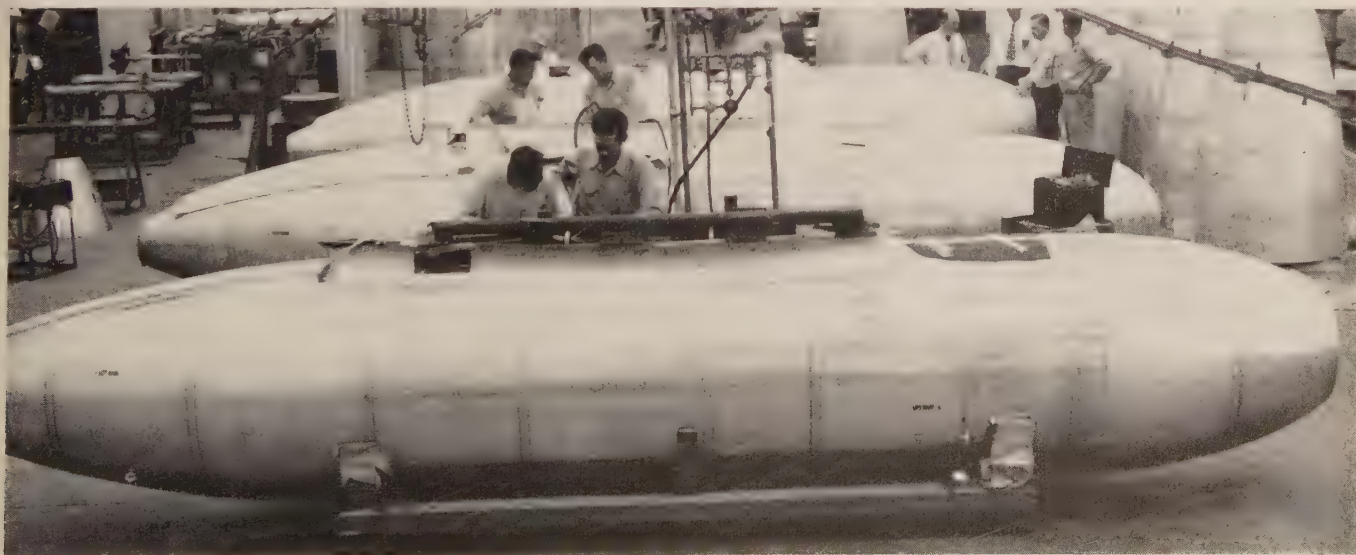
High Strength Aluminum — A high-strength aluminum alloy without cladding is used in the tank project. This alloy is also desirable because its high ductility makes it adaptable to resistance welding. However, it is difficult to clean thoroughly.

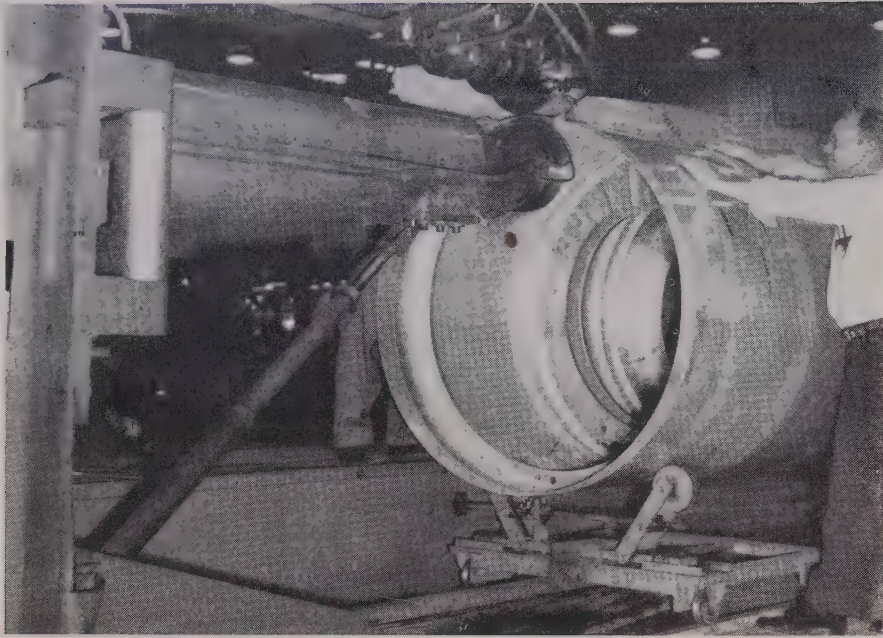
A cleaning agent was developed which removes oxides uniformly. The cleaned surfaces have a low surface resistance which is maintained for longer periods. The process is not critical, giving the same results with immersion periods varying as widely as 2 to 20 minutes.

The daily charts of surface resistance show that a consistent figure running between 10 and 15 micro-ohms is attained.

Leak - Tight Construction — Because of the nature of resistance welding a major concern was the requirement that the big tank be made leak-tight by welding alone.

Fuel cells are aerodynamically smooth. Over 30,000 spot welds join sheets





The fuel tank sections are carried to the welding machine on steel dollies

Unlike rivets, spot welds cannot be repaired or replaced if they are seriously defective. Also, their strength is critically keyed to the condition of the surfaces welded and the behavior of the welding equipment. One grease spot or foreign particle can cause welding resistance and temperatures to zoom and produce an explosive melting of metal with a resultant hole in the sheet.

Consequently, care is taken to prepare the sheets and to govern the performance of the machines. All aluminum alloy is welded within 24 hours after cleaning. Test samples are taken from the machines each hour and subjected to tensile pull test of 1200 pounds. Regular x-ray examinations are made from sample spot weld pieces to check the microstructure of the cast weld material. Each tank section is pressure tested with $3\frac{1}{2}$ pounds per square inch pressure to discover any leaks which may exist.

'51 Accident Loss Summarized

Time lost as a result of U.S work accidents in 1951 totaled 280 million man-days. Total cost in dollars of these occupational injuries hit \$2,650,000,000.

These are two summaries presented by National Safety Council in the 1952 edition of its statistical annual, "Accident Facts." Twenty-

one pages of the 96-page report are devoted to occupational accidents, providing factual background necessary to give direction to an industrial safety program.

Among subjects detailed are most common sources of injury, part of the body most frequently injured, off-the-job problems and women in industry.

Gear Costs Are Cut

Powder metal technique eliminates 15 machining, assembly operations, reduces costs 80%

A SPUR mitre gear used in a business machine is being made by the Powdered Metal Products Corp. of America, Franklin Park, Ill., at a reduction of 80 per cent in production costs due to elimination of 15 machining and assembly operations.

The dual gear, if machined from stock by conventional methods, the company says, would be prohibitively expensive; blanks for the spur and mitre sections would have to be shaped separately on turret lathes, a gear shaper would be required for cutting teeth and burring the spur gear; and a gear cutter would be necessary to cut the teeth of the mitre gear.

In addition, assembly operations would require further deburring as well as degreasing of both parts, plus soldering to join the two parts

followed by furnace or induction brazing.

One Piece Job—By powder metal processing the gear is formed as a single piece at a single stroke. The metal powder is dumped into the hopper of a Stokes powder metal press, from which it flows into the die cavity to be compressed by punches moving simultaneously from above and below.

After the piece is pressed, it is relatively fragile and must be sintered; after sintering, it is tough enough to meet all strength requirements. Extremely close tolerances eliminate the need for any final machining or other finishing and, of course, assembly operations are not required.

Other Savings—Similar savings in manufacturing other gears with powder metal, also have been achieved by Powdered Metal Products. A small bevel gear for a power drill with a tensile strength of 100,000 psi, was made with a saving of eight machine operations and an 86 per cent reduction in cost. A helical and spur gear for a washing machine transmission with 18 machine operations eliminated, provided an 88 per cent saving, is another example.

Other noteworthy advantages of powder metallurgy are the absence of scrap loss and reduction of stock inventories; half a dozen types of metal powders will replace a large inventory of bar stock of varying sizes, shapes, and compositions.

Control Line Is Oil Tight

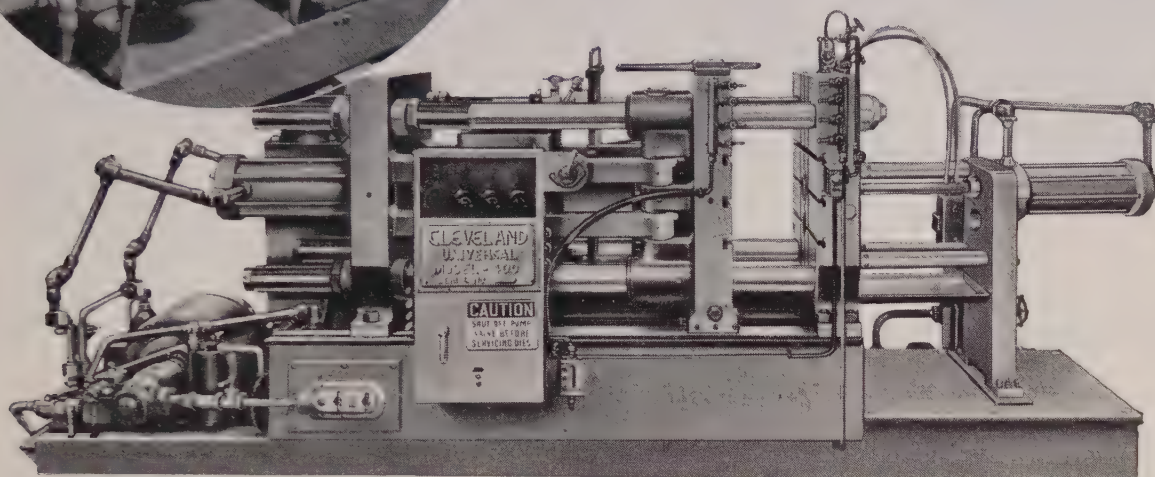
Complete line of pushbutton controls, said to assure dependable operation even under constant oil flooding, is introduced by Arrow-Hart & Hegeman Electric Co., Hartford, Conn. Standard, extended and mushroom buttons, two and three-position selector switches, and pilots comprise the line. Units can be mounted directly on machines or in control cavities.

Oil-tight heavy cast aluminum enclosures are supplied for mounting any unit or combination close to the machine. Firm reports complete interchangeability is a basic feature. Entire units can be interchanged readily, as well as various operating assemblies.



NEEDED HERE

a **SMALL** oil cooler for a high pressure die casting machine



Cleveland Universal High Pressure Hydraulic Die Casting Machine, Model 400. Equipped with a Ross Exchanger.

that's why a Ross Exchanger is standard on Cleveland Universal Model 400

Embodying the tremendous sturdiness and rigidity required for casting large parts, or small ones from multiple cavity dies, this Cleveland Universal 400-Ton Hydraulic Die Casting Machine delivers uniform castings at a high rate.

Oil is available from its 100 gal. reservoir at 55 gpm (at 300 psi) or 20 gpm (at 1000 psi). To maintain peak capacity, the hydraulic oil must be kept within specified temperature limits. Overheating would thin the oil, causing pump slippage. This would slow down production rate — could even result in complete work stoppage!

The Cleveland Automatic Machine Company selected and standardized on Ross Type BCF Exchangers not only for their proven dependability, but also because they were found to be the smallest units capable of handling the oil capacity required. *Available space made a small unit imperative.*

Throughout the hydraulic machinery industry, compact, all-copper and copper alloy Ross Type BCF Exchangers are the preferred guardians of

oil temperatures. No other exchanger offers all the advantages of pre-engineering, complete standardization, mass production. For full details, request Bulletin 1.1K5.

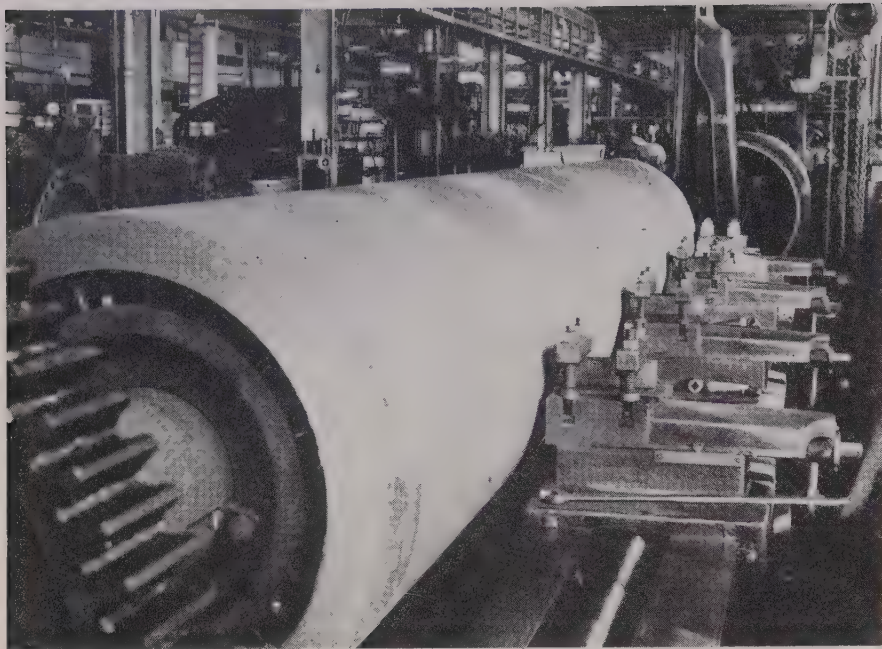
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MACHINING CAST IRON DRIER ROLLS

... turning operation is completed in one pass

Carbide Inserts Reduce Turning Time

Machining time on 60-inch diameter cast iron drier rolls is reduced 83 per cent with the use of tungsten tools. One set of inserts turns about 153 rolls

EIGHTY-THREE per cent reduction in turning time and elimination of much tool re-grinding previously necessary resulted at an eastern paper processing equipment producer's plant through use of tungsten carbide insert tools.

Insert tools used are the Kendex, made by Kennametal Inc., Latrobe, Pa. The job called for machining cast iron drier rolls 60 inches diameter, 226 feet long and with a 3-inch wall thickness.

Complete in One Pass—These 14-ton rolls are supported by spiders on each end of a 14-inch diameter shaft. They are machined on a Niles engine lathe that has been in service about 50 years. Prior to use of carbide tooling, turning was done with four high speed steel tools at 14 sfm, $\frac{1}{8}$ -inch feed per revolution and $\frac{3}{16}$ -inch maximum depth of cut.

Rapid wear on the tools caused taper, which forced an additional cut. Total turning time was 16.8 hours.

The four insert tools now used complete the turning operation in one pass. Each tool cuts about 56

inches of the total length. Feed and depth of cut remain the same as previously employed, but speed is increased to 41 sfm—the maximum due to condition of the machine. Total turning time with carbide tool is 2.9 hours.

No More Chatter—Chatter from worn bearings and ways caused failure of several carbides applied before on this job. Chatter was aggravated further by the roll's weight. By raising the tools progressively above the center line, a point was found where all chatter was eliminated.

Inserts are rotated to a new cutting edge after turning each drier roll. Approximately nine new edges are available for each insert before regrinding is necessary. Tool insert life extends through about 17 regrinds. This means 153 balls can be turned by a set of four inserts.

Casting Glossary Published

Glossary of terms for producers and users of iron castings explains more than 150 technical terms necessary to transactions in the fer-

rous and nonferrous castings field. In working out procurement of a satisfactory or improved product, the booklet should prove useful also to the designer, machinist and purchaser.

The 36-page glossary is the work of International Nickel Co. Inc., New York, and can be obtained from the firm's Department EZ.

Bearing Corrosion Studied

Navy's amine-acid inhibitor succeeds in tests on brass-retainer ball bearings

PROPER CORROSION inhibitor can reduce or sometimes even prevent corrosion of brass-retainer ball bearings. This is the report made by chemists at Naval Research Laboratory in a study continuing under Office of Naval Research, Washington.

Study was prompted by difficulties experienced recently by ball-bearing manufacturers, military laboratories, and maintenance depots from corrosion of steel balls and races in brass-retainer ball bearings during storage. Corrosion in the form of fine specks was observed on steel parts of these bearings after storage in rooms controlled at 70 to 80° F and 30 to 40 per cent relative humidity.

Corrosion was observed to be general to these bearings whether they are in contact with petroleum or with synthetic lubricants. It is not limited to diester-type oils.

To solve the problem, it was first necessary to duplicate this corrosion and analyze the corrosion product. To duplicate in a short time conditions that developed after relatively long storage periods, special test specimens and conditions were employed.

Laboratory Corrosion—In laboratory tests, a special lubricant with a high concentration of rust inhibitor in the diester was used. To increase the amount of corrosion produced under lab conditions, specimens were exposed to temperatures of 136° F at a relative humidity of 36 per cent. Medium to heavy corrosion resulted in periods varying from 7 to 21 days.

Observing the effect of humidity on corrosion of brass in contact with steel, a series of tests

SPRING STEEL



***Roebling Cold Rolled
Spring Steel brings
fewer machine
stoppages . . . fewer
rejects***

YOU SAVE MONEY with Roebling Cold Rolled Spring Steel because it's of absolutely uniform quality. Every inch is just like every other inch, dimensionally and in physical properties. Service records show that it cuts down preparation time . . . gives you a better product and better production. And Roebling Cold Rolled is made annealed, hard rolled untempered; scaleless tempered; tempered and polished; tempered, polished and strawed; and tempered, polished and blued.

Large quantities of Roebling's specialty wires — flat, round and shaped — are required today in the national rearmament program. Roebling, however, is one of America's largest manufacturers of specialty wires, and we shall always do everything possible to meet your requirements. John A. Roebling's Sons Company, Trenton 2, New Jersey.

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Atlanta, 934 Avon Avenue ★ Boston, 51 Sleeper Street ★ Chicago, 5525 W. Roosevelt Road ★ Cincinnati, 3253 Fredonia Avenue ★ Cleveland, 701 St. Clair Avenue, N. E. ★ Denver, 4801 Jackson Street ★ Detroit, 915 Fisher Building ★ Houston, 6216 Navigation Boulevard ★ Los Angeles, 5340 E. Harbor Street ★ New York, 19 Rector Street ★ Odessa, Texas, 1920 E. 2nd Street ★ Philadelphia, 230 Vine Street ★ San Francisco, 1740 17th Street ★ Seattle, 900 1st Avenue S. ★ Tulsa, 321 N. Cheyenne Street ★ Export Sales Office, Trenton 2, N. J.

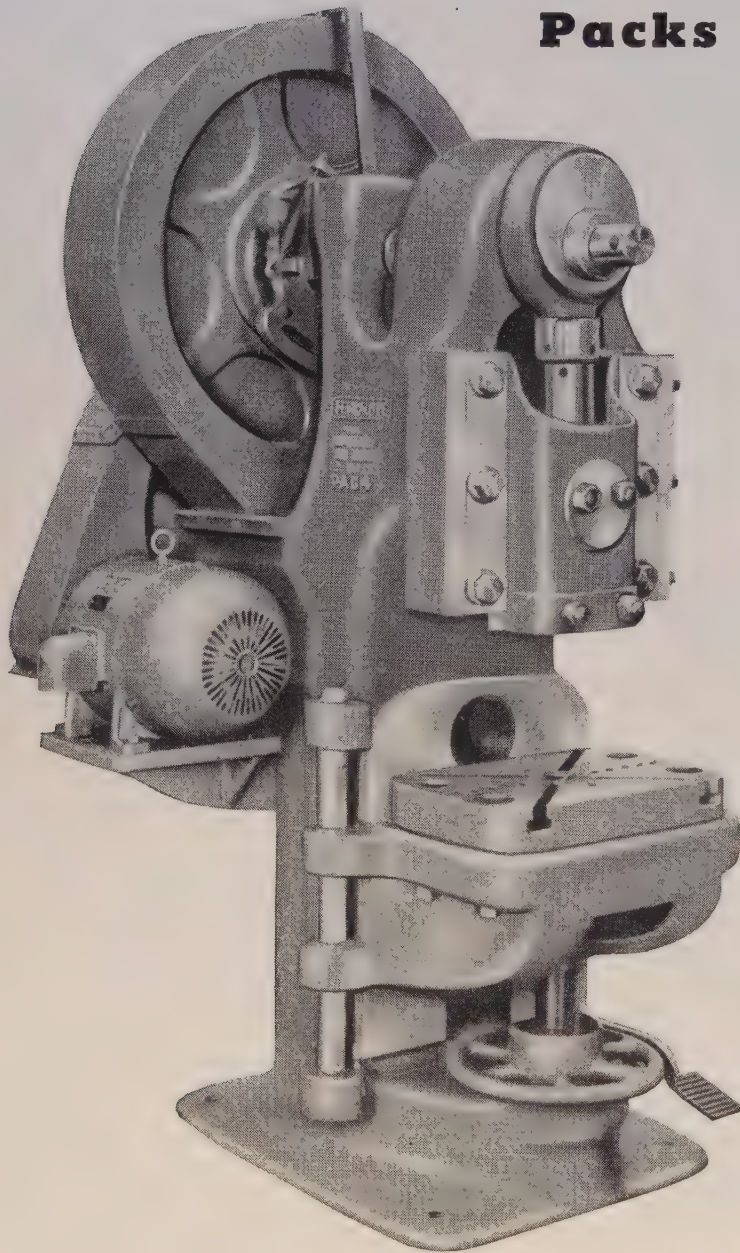


This FERRACUTE P PRESS

Packs a ONE-TWO PUNCH

One- adjustable bed
Two- horn tool

Bed in working position is adjustable for various die heights. Bed is tongued for alignment. Securely bolted to the frame casting and supported at the center by extra large adjusting screw. Bed is also hinged so that it will swing clear to allow a horn to be inserted in frame for punching, riveting, or forming large angular pieces.



FERRACUTE

Double Purpose Press PAG-4

Especially useful when employed on work requiring frequent changes of dies of various heights.

FERRACUTE

FERRACUTE MACHINE COMPANY

Since 1863 Manufacturers of Power Presses and Special Machinery **Bridgeton, N. J., U.S.A.**

were made in dessicators over anhydrous calcium chloride. None of the specification lubricants caused corrosion on a steel-brass couple in the absence of water vapor, even at 136° F for 30 days.

Electrolytic in Nature—Corrosion encountered in these tests was shown to be electrolytic in nature and probably accelerated by small quantities of acids formed by oxidation or hydrolysis of the lubricant. It was then necessary to develop methods or lubricating compositions that could be used to alleviate this action.

By combining acid neutralizing qualities of an amine with rust inhibiting qualities of an organic acid and thus developing amine-acid complexes, satisfactory corrosion and rust inhibiting compositions were evolved.

Word of Warning—Chemists at NRL caution users of the amine-acid complexes. They report that if the lubricants are to perform at high temperatures, care must be taken that the temperature does not exceed that at which decomposition of the additives would take place. For high-temperature performance, metal deactivators or more heat-stable neutralizers for acids deserve study. Moving parts would be a problem if metal deactivators were being considered.

Because this corrosion at low humidities has been found serious only in the presence of brass, the Navy add that the use of this material for separators in ball bearings should be discouraged.

Nonferrous Wire Men Organize

Organization of a new division to meet requirements of nonferrous rod, wire and insulated wire and cable producers should be completed soon by the Wire Association. First regional meeting is Sept. 19 in Waterbury, Conn.

Richard E. Brown, the parent association's executive secretary, says work on a division to serve the nonferrous field specifically has progressed since April, when the first committees were named. Serving on chairman of the nonferrous wire section is William L. Wells, Scovill Mfg. Co.; James E. Flood, Plastic Wire & Cable Corp., is chairman of the electric wire and cable section.



Centrifuge Chamber: 173 mph in 7 Seconds

Human centrifuge chamber in the aviation medical acceleration laboratory at Naval Air Development Center, Johnsville, Pa., is capable of accelerating to 173 mph in less than 7 seconds. The big centrifuge is rotated by direct connection to the 80-ton rotor of a General Electric Co. motor in the base at lower right. Arm, gondola, gimbals, counterweight and controls weigh 84,000 pounds

Positive Battery Selection

Capacity curve can tell user how many, what size batteries meet a given need

PROPERLY USED, a battery capacity curve can tell how many and what size batteries will supply a given power requirement. By employing capacity curves, a user can check supplier's recommendations to be doubly sure not to choose under-capacity units that run down too soon or over-capacity batteries that can mean unwarranted initial cost.

Mechanics and advantages of selecting batteries with a capacity curve are reported by K. A. Vaughan, supervisor field engineering, Gould National Batteries Inc., Trenton, N. J.

Measured Rate—Battery capacity, the total amount of energy a battery delivers as its voltage drops from initial to final value, depends on electrolyte temperature and battery discharge rate. In determining this data, discharge rate is measured by the number of hours required to discharge the battery at constant current. Capacity is measured either by amp-hours a battery will deliver be-

tween charges or by the current in amperes it will deliver while being discharged.

Batteries, says Mr. Vaughan, do not actually discharge all of the energy they store. They are considered to be discharged when their voltage reaches an arbitrary final value—usually taken as 1.75v per cell.

The engineer defines a capacity curve as the plot of the capacity per positive plate versus the ampere discharge rate for a given temperature and to a specified final voltage.

Appropriate Intersection — To find the capacity per plate for a particular battery, select an hour discharge rate and find the intersection of the appropriate hour discharge-rate line with the curve marked final voltage on the capacity graph for that battery. The horizontal line through this intersection crosses the vertical axis at the amp-hour capacity per positive plate; the vertical line crosses the horizontal axis at the ampere capacity per positive plate.

Capacity curves for various final voltages are prepared for each industrial battery and are available to the users from the manufacturers.

Scorecard Insures Spares Control Program

By VINCENT SATKOFF
Spares Control-Man, Sheared Plate Dept.
United States Steel Co.
S. Chicago, Ill.

Simplified system for controlling spare parts of steel mill equipment indicates the location of spares in various departments, when they are used and when they should be ordered

SPARE parts control systems are created to guide maintenance personnel in ordering the spares required, in knowing what spares are on hand, and where they are located; and in knowing when the spares are put into use so that the part taken out can be ordered, repaired or replaced. Knowledge of these pertinent facts about spares prevents duplication or excessive ordering of material and means more efficiency in planning or making repairs.

A spares control system that is close to perfection can be set up and kept in operation through the use of the "maintenance scorecard." Along with accurately imparting the information mentioned above, it forcibly calls to attention the spares that are neither on hand nor on order, because they were not re-ordered for some reason after being used or because those spares were never carried.

How Card Is Compiled—First of all, the maintenance scorecard for the department must be compiled. The scorecard is a complete, simplified listing of the spares (assemblies and individual parts) that are required for maintaining the equipment. The spares for each piece of equipment are listed together under the name of the equipment on numbered pages that are put into looseleaf book form and indexed. Each page is divided into eight vertical columns. Five are headed "Item Number, Item, Blueprint, Pattern and Num-

ber in Service," and are filled in with permanent data; the remaining three columns headed "Number on Hand, Last Date Used and Remarks—Job Number," are left blank. These pages are then reproduced in quantity. The three columns that are left blank are filled in only on the date to be noted in the upper right hand corner.

The basis of the system is a visual inspection of the spares in their storage areas at regularly scheduled intervals, ranging from once a month up to twice a year, depending upon the type and importance of the equipment, with a report being turned in to the general maintenance foreman. The pages that have been reproduced in quantity are used for the report. The completed report tells everything about the spares that must be known in the job of keeping the mill rolling.

Before the first field check is made, spare parts tags are made out for all the spares listed on the page to be worked on. The spares man then checks every possible storage area, tagging new or usable spares and noting their location. They are checked against the blueprint if necessary. Spares that require repairs or that should be scrapped should also be noted. Later, a yellow tag for the repairable spare and a red tag for the part to be scrapped should be made out and attached. Small parts that are stored in bins should be

placed in order and counted. A single tag will suffice the first time around, but later more should be tagged, to make it easier to keep track of them should they be scattered or if one with the tag is used.

Predicated on Field Notes—From the notes gathered in the field, the report is made out. In the "Number on Hand" column, the quantity of new or usable spares is shown. If old spares on hand require repairs, show the quantity plus the word "used." This will show that the parts that come out of service are still on hand and that entire new assemblies need not be ordered.

In the "Last Date Used" column, show when the spare was last put into service. For small parts used in quantity, show how many were used in the past six or twelve month period.

In the "Remarks—Job Number" column, the location of new or used spares is shown. What is wrong with the used spares and the order numbers under which they will be repaired are shown as is the order number for new spares.

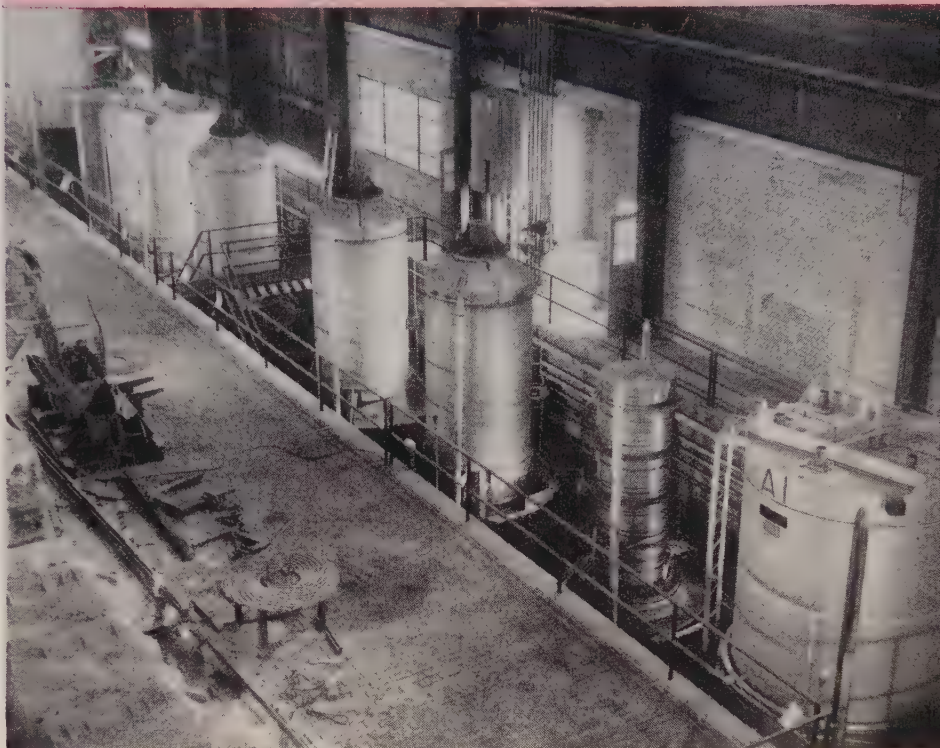
The completed report, with a prepared order blank, is turned in to the general maintenance foreman who, by a quick glance at the "Number on Hand" column, determines the exact status of the spares required for maintaining the equipment. If there are none shown on hand, and none shown on order in the "Remarks" column

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TYPICAL INSTALLATION OF SINGLE STACK FURNACES



QUICK HANDLING



LOW LABOR COST



ONE INNER COVER MOVEMENT



MAXIMUM LOADING



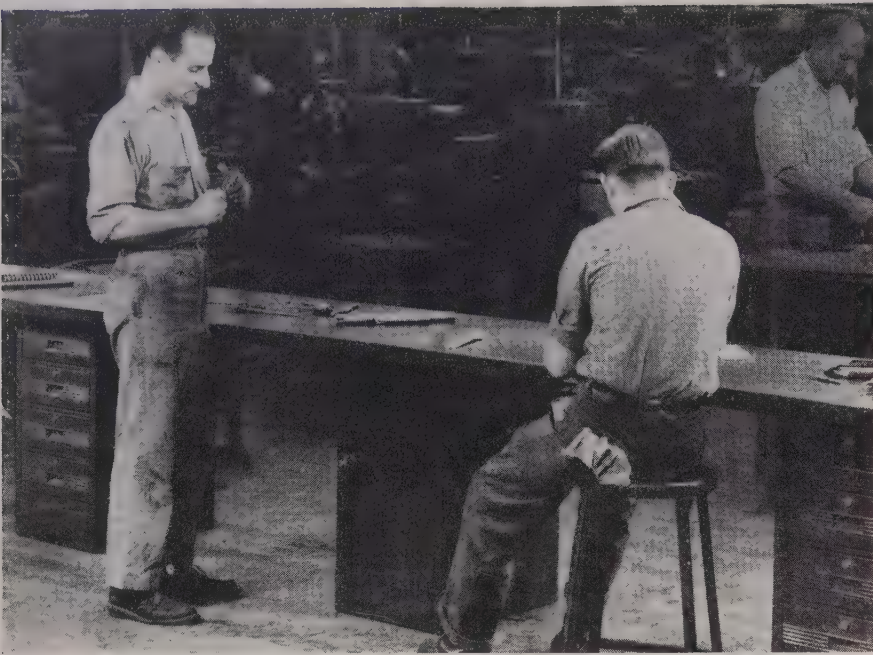
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RADIANT TUBE HEATING • ANNEALING PROCESSES



Tailored Benches, Uncluttered Surfaces

Work benches that can be tailored to fit space and whose storage facilities should cause an advance toward uncluttered working surfaces are a development of Standard Pressed Steel Co., Jenkintown, Pa. Units can be used as continuous benching or as single work stations. They are available in 5 or 6-foot lengths

he decides whether or not they should be ordered. If the parts are not likely to be needed in the immediate future, their ordering can be postponed until a later date. The next report on schedule will call their lack to his attention again. If he decides to order any spares, all that he has to do is to jot down the item number which is in the first column on the left of the report and the quantity desired. Where there are spares on order, but not on hand, the information required for expediting purposes will be found in the "Remarks" column.

When the report and the order blank are returned to the spares controlman, he originates the order for any material required by the general maintenance foreman in the job order book. The report is then inserted into its proper place in the loose-leaf binder that forms the maintenance scorecard, replacing the page of the same number that was already there. The page removed should be saved until the next checking date when it will be of great aid in making the rounds and inspecting the spares, since the location of the spares not used should be the same as shown and only a check mark will be required in-

stead of more writing. This then can be copied down on the new report.

Although new reports are turned in only once a month and some less frequently, the number on hand can be kept up to date by changing the amount shown when spares are used or received. This is important when the spare is an assembly and only one is carried. You either have or have not a spare.

Method of Checking—The schedule for making the field check and the report can be made up as they are completed the first time. Make a vertical column on the right hand side of the index page with the heading "Checking Dates." When a report is completed the first time, use the day of the month as on the report and note how often it is to be made.

Example, "Monthly the 10th." Also, head the back of the first index page, "Checking Dates" and divide into three vertical columns to be headed "Monthly" "every three months" and "every six months." Under "Monthly", number the days of the month and fill in the name of the equipment with its page number as each initial report is completed. In the other two columns, show the equipment and page number and the months

when they should be checked. For example, "January, May, September."

The above program will insure a spares control program that gets the needed spares ordered, knows where they are when on hand, and when they are used, so that they can be re-ordered or repaired. This is because it is a one-man affair not dependent upon others for necessary information. The work required to maintain the system in perfect working order is laid out in such a manner that it becomes mere routine. Keeping control of the spares situation, which formerly required years of experience and a great deal of specific and general knowledge, now, through the maintenance scorecard system becomes a relatively simple matter.

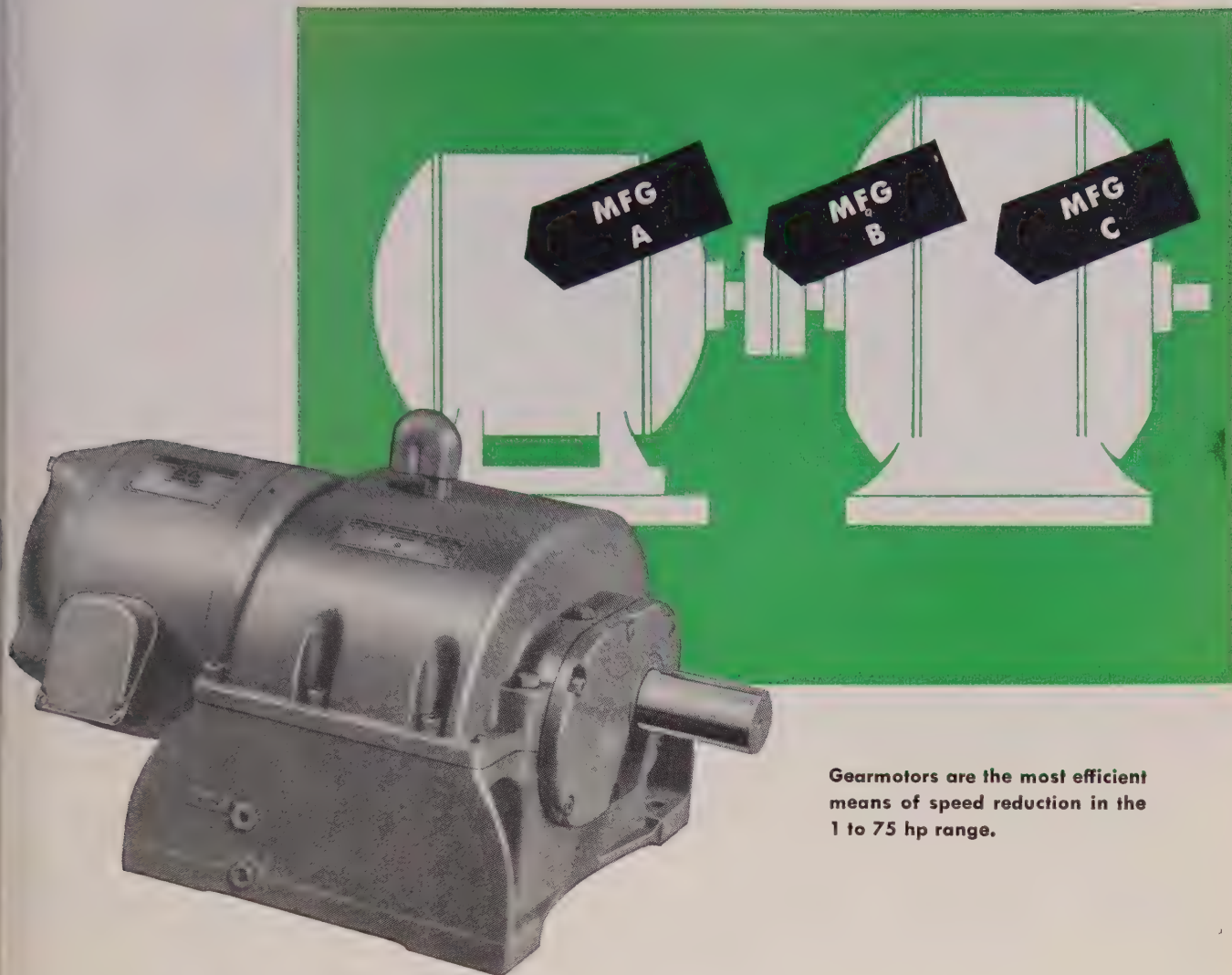
To simplify the job of checking spares in the field, to make for better housekeeping and to keep useless scrap parts from accumulating, the following should be done:

With each report, the sparesman should list on a separate sheet of paper the spares for that equipment that are scattered in storage area, the spares that are stored in an unsafe or disorderly manner, and the spares that should be scrapped. The name of the spare, its present location, and to where it should be moved should be stated. These spares should be tagged, with either a spare part tag, a yellow tag or a red tag to make for easier identification. The general maintenance foreman should instruct each turn to take care of one or two of the items until they are all done. This will not take up much time, as it is only concerned with one or two pieces; not a general clean-up campaign.

New Casting Process Added

Production facilities for precision castings made by the shell molding process are now available at Powdered Metal Products Corp. of America, the Franklin Park, Ill. company reports.

The company says it devoted better than a year of experimental and development work to the process, including production runs. Products of the casting line are expected to be marketed as "die mold castings."



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STEEL SILOS AT GENERAL REFRACTORIES
 . . . 20 units stockpile 20,000 pounds of chrome ore

Silo Facilities Cut Chrome Ore Steps

Indoor stockpiling eliminates the extra processing steps necessary when chrome ore is exposed to the elements. Ore is crushed and stored in nearly-ready-to-use form

STEEL SILO storage facilities are eliminating processing phases on chrome ore used for refractory brick at General Refractories Co.'s Baltimore works.

The silos were completed recently for indoor stockpiling ore, a major raw material in the manufacture of the basic brick. Previously, ore had been stored out of doors, exposing it to the elements.

Construction of the storage facilities is a part of the firm's \$12 million modernization program. A total of \$3 million already has gone into the Baltimore plant.

Additional Handling — Experience with outdoor storage indicated that exposure to the elements caused an extra burden in both time and costs. Before it was ready for brick making the ore had to be run through additional mechanical and manual handling preparation processes. With the silo system, the company rushes ore as it comes from railroad cars and stores the product in nearly-ready-to-use form.

A total of 20 silos are built in two rows of ten. Each silo measures 30 feet high, 20 feet in diameter and has 750-ton storage ca-

capacity. The 5 feet of space between each unit is also used to advantage by connecting tanks with steel siding. This provides nine additional compartments and boosts total capacity to about 20,000 tons.

Conveyorized Handling — Conveyor belt that travels in a 240-foot long subway under the tank rows moves ore to areas in the plant where it is mixed with other materials in the brick making process.

An overhead conveyor system carries ore to tops of the silos, where it can be emptied into any of the 20 main and nine supplementary tanks. Each silo can be entered for periodic cleaning through a door at the base.

Tool Salvage Welding Detailed

Developments and techniques in the specialized field of "Tool and Die Salvage Welding" are found in a 64-page book published by Eutectic Welding Alloys Corp., New York.

Contents include detailed discussion of problems in welding tool steels, an effective tool and die

welding and salvage program, an outline of tools that can be welded and salvaged successfully and an outline of new methods in production tool welding.

Furnace Maintenance Shift

Copper melters, refiners try preventive practice, using air gun refractory placement

GRADUAL SHIFT in the copper industry toward continuous preventive maintenance on melting and refining furnaces is reported by Basic Refractories Inc., Cleveland.

Basing its conclusion on recent trial operations, the firm says there is increased acceptance of the idea that use of a specified poundage of maintenance refractories per ton of copper produced is justified to extend furnace life.

Preventive maintenance requires, in part, use of granular basic refractories to patch severely corroded furnace sections, preserving that portion constructed of basic brick. The practice is designed to lengthen intervals between major brickwork repairs and reduce shutdowns. Net effect is to produce greater tonnages.

Two Characteristics—Before acceptance of maintenance practice can be general, producers must be shown its practicality. This, says the refractories producer, involves evidence of a method of application that causes minimum loss of refractory, plus substantially extended furnace life.

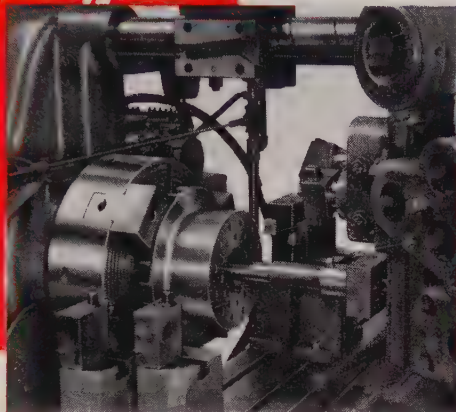
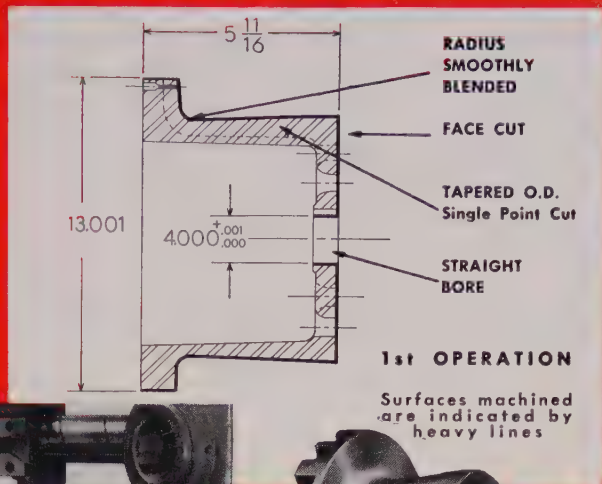
To secure records of performance, several large refiners conducted maintenance experiments over the past three years. Regarding application, results of work completed show the air gun method effective. The gun, says Basic Refractories, permits the operator to place his refractory precisely. It means the patching job can be done quickly and easily as compared with hand methods—and with negligible refractory loss.

Life Extension—Where the gun and refractories are used, the company reports furnace life extension has been notable. They cite copper casting departments where furnaces have been operating for 24 years with no major brickwork on sidewalls maintained continuously with air emplaced refractories.

DOING
Hard Jobs
THE
Easy Way

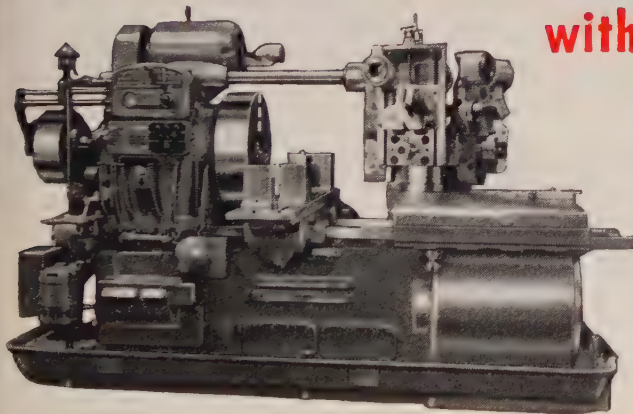
**WITH SPEED...
PRECISION...
ECONOMY**

calls for a



**STEEL
CASTING**

POTTER & JOHNSTON 6-DRE *Automatic Turret Lathe* **with P & J TOOLING**



Skillful P & J Tooling on the powerful P & J 6-DRE Automatic is a combination that adds up to increased output with high precision and lower production and labor costs on every type of work. In the set-up for the steel casting job shown above, the overhead pilot bar is equipped with a cam that operates a slide tool on the turret to obtain the angle with a single-point cut.

If you'd like to turn out your hard-to-machine jobs faster and better with fewer rejects and greater profits—try doing them the P & J way. Just do this: (1) Write today on your company letterhead for your copy of Bulletin No. 148 that contains ideas for the profitable machining of forgings, castings and cut-off bar stock, and (2) Ask the experienced P & J Tooling Engineers to help you. They'll be glad to recommend the best possible combination of tooling and operation sequence. There is no obligation.

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Tooling for over
50 years

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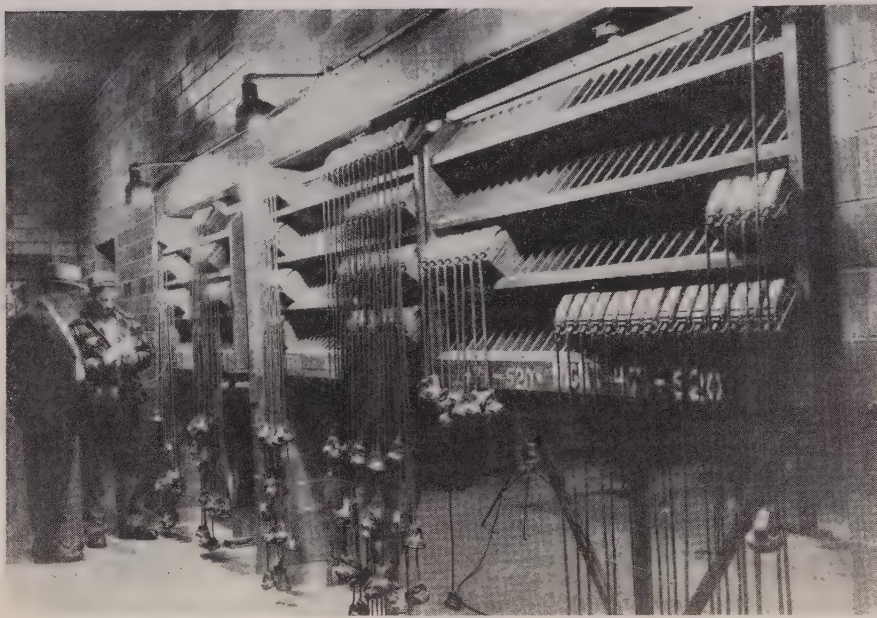
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This is compared with previous sidewall life of about 5 months.

In one instance, a 5 x 3-foot section spalled to a 6-inch depth. This weak spot has been maintained for seven months and still no need exists to replace the brick.

Other Applications—In another application, the company says continuous slag line maintenance in

refining and anode furnaces has caused as much as a 125 per cent increase over furnace life obtained by previous furnace methods. Out of these experiments has evolved a standard practice of shooting the slag line after every third or fourth cast. This practice proves effective in eliminating problems related to slag line erosion.



LAMP RACK ON CENTER PIVOTS IN ONE WALL

... swings to face first lamproom attendants, then miners

Rotating Racks Speed Lamp Distribution

Self-service setup built on center pivots reverses to provide fast distribution of lamps to miners after lamphouse personnel completes the charging operation

PHYSICAL DESIGN and operating procedures of a new lamphouse at the Mather B shaft of Negaunee Mine Co. include all basic elements for maintaining and distributing miners' cap lamps efficiently.

Management of the mine planned its new system to provide fast and easy lamp distribution and return; positive distribution, charging and maintenance control; maximum use of available space; and functional efficiency and responsibility of lamphouse personnel.

Self-Service Racks — One outstanding feature of the new operation is installation of reversible self-service racks for daily distribution of cap lamps. In use at this shaft are 544 Edison R-4 electric

lamps. Racks are supplied by Mine Safety Appliances Co., Pittsburgh.

Racks are built on center pivots in one wall of a corridor between the changehouse and the shaft. Lamproom is on the opposite side of the wall. This arrangement permits lamproom attendants to insert charged lamps in slots on one side of the racks, then swing the entire panel around to face the corridor. There miners can remove individual lamps.

Faster Distribution — Each of three separate reversible racks is marked as to shift and clock number group. Total rack capacity reaches 696 R-4 lamps. This type of distribution, says the mining firm, increases substantially the

speed with which miners can pick up or leave their lamps. In addition, they report no chance of an uncharged unit finding its way back into service. When the attendant swings racks around to face the lamp room he has only to place lamps on a special dolly, which is then wheeled to the R-4 charging racks. Before being recharged, each fixture is inspected carefully.

Tellurium Improves Copper

TELLURIUM copper alloy applicable for mass production of electrical and electronic connectors is announced by Chase Brass & Copper Co., Waterbury, Conn. The firm reports machinability approaches that of free-cutting brass and electrical conductivity reaches 90 per cent of that credited to pure copper.

Addition of tellurium does not materially reduce electrical conductivity—but it does greatly increase ease of machining, says the company. They add that tellurium copper can be hot worked extensively because tellurium does not affect copper's hot working properties adversely. The alloy can also be severely cold worked, although it is less ductile at room temperature than pure copper.

These properties indicate an advantage in comparison with leaded copper or leaded-high copper alloys, says Chase. This, they state, is true because hot working properties of copper are reduced where lead is added.

In other applications, tellurium copper is adaptable for welding and cutting tip products because of its machinability and high thermal conductivity. Company reports the product is supplied in hard or half hard temper, in rods or bars.

Spray Paint School Scheduled

Spray painting school sponsored by Binks Mfg. Co., Chicago, is scheduled for three sessions this fall, one each in September, October and November. Instruction is aimed specifically at training of officials, supervisory personnel, distributors and service men. Classes are conducted at the firm's Chicago plant.

Each five-day program develops

complete approach to operation, maintenance and repair of manual and automatic spray equipment. Common causes of faulty operation are described and methods outlined for avoiding or correcting defective work.

Other phases that are covered include a study of practical spray booth applications, and construction and operation of such accessories as oil and water extractors, air compressors and portable painting units.

Attendance at the school is free. Terms will be held Sept. 8-12, Oct. 6-10 and Nov. 10-14.

Mill Carts Heliarc Welded

TOW CARTS used for textile mill handling are being fabricated successfully by Heliarc welding. One manufacturer reports both manual and automatic welding techniques are employed, both resulting in welded beads sufficiently smooth to require little finishing.

Because corrosion on inside surface will damage materials being



CAN BOTTOMS WELDED MANUALLY
... high-speed job is done unrigged

handled, stainless steel is used for the cans. Stainless cans, 22 gage and 40 x 42 x 50 inches, are mounted on a galvanized steel base. Manufacturer's schedule calls for completing 20 cart assemblies in one day.

Fabricating Procedure — First step in fabricating the carts is the cut-out operation on parts that will make up the cans. Then side

FROM

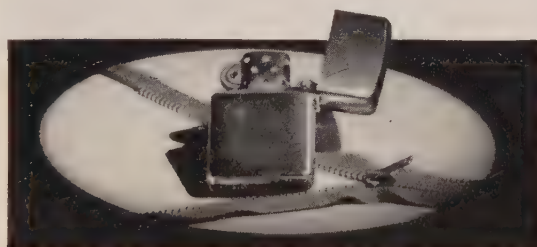
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Latest on Moly Welds

WHAT causes molybdenum to get brittle in welds, and what can be done about it? That's what Battelle has been trying to find out since 1949.

Although the investigation is not yet completed, the Columbus, O., researchers found that ductile resistance-upset welds can be made in high purity molybdenum if contamination of welds is prevented. Thorough cleaning of faying surfaces before welding and shielding the welds from air during welding are necessary.

Resistance-upset welds with some ductility can be made in commercial arc-cast molybdenum that is deoxidized with carbon, Battelle says. Also, heat treatment produces some ductility in resistance-upset welds in commercial swaged powder metallurgy molybdenum, but porosity is a serious problem.

seams are welded automatically and can top is flared.

Automatic welding is done on a horn-type jig developed by the manufacturer. Grooved copper backing bar is actuated by a pneumatic fire hose setup. No welding rod is employed to make the automatic butt seams. Welding speed is 25 ipm, using a 1/16-inch diameter tungsten electrode at about 10 amp.

No Distortion—Can bottoms are welded manually, using a light weight Heliarc torch to tack, the weld. Because of the high speed of this welding and type of corner joint used, this work is done unjigged. The firm reports almost no distortion occurs.

After welding, sample cans are given ferrocyanide precipitation and air-pressure soapsuds tests. Thus far, the company says, all samples taken have been approved.

Respiratory Devices Listed

A list of respiratory protective devices approved by Bureau of Mines up to Feb. 1, 1952, is included in a publication released by U. S. Department of the Interior. In addition to listing all approved devices, the report includes photographs illustrating the various types.

t Resists Corrosion

Thermo-chemical process gives corrosion resistance to mild steel and nonferrous metals

EXCLUSIVE licensing rights to the Permyron process—a new process that gives high corrosion resistance to mild steel and other ferrous metals—is now held by Stanwood Oil Corp., John A. Kaye, president, reports.

According to the company, the process, under development for over 13 years, consists of thermo-chemical treating of metals. Application requires a chemically clean surface which is treated hot under controlled conditions.

Goes Through Pores—Heat employed, Mr. Kaye says, is not enough to temper and soften cold rolled, or other work hardened steel. Since the material is absorbed into the pores of the metal in the process, the coating does not change the dimensions to an extent that can be measured by a micrometer.

Thus far the process has been subjected to test by various companies and independent laboratories. All have reported favorable results.

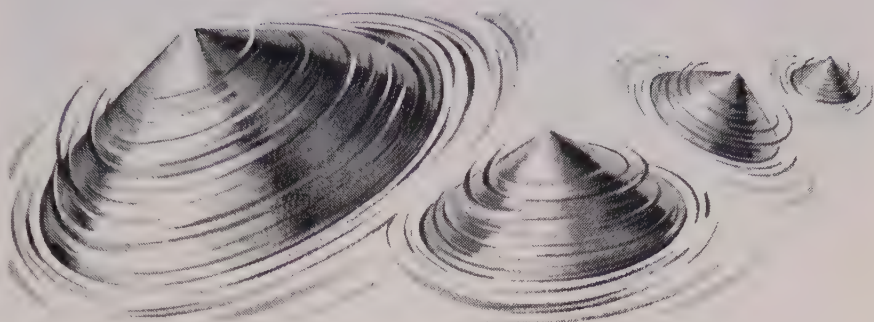
Among those who have made tests are Vega Aircraft, Chemical Warfare Service of the U. S. Army, Standard Brands and Lucius Pitkin. Interest in the process has also been evinced by such firms as Nox-Rust Chemical, Servel and Coleman Co.,

Cost In Line—Regarding cost, Mr. Kaye points out that the process is produced on specially controlled but standard coating and heat treating equipment, and the cost per square foot, or per piece, is substantially the same as that of present methods or even baking enamel finishes, except that Permyron has a low material cost factor.

Metal subjected to the treatment forms a dense undercoating or primer for paint or other decorative finishes either baked or airdry, forming an inert, flexible base which is highly resistant to attack by ordinary weathering or acid conditions.

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flying saucers...



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The magnification is fixed . . . that is why its scale can be calibrated

Both the Dimensionair and the master ring are constant. Only the dimension of your *work-pieces* can vary. Because the Dimensionair is a precision measuring instrument with a constant scale value, only a single master

is required to check the zero location. Don't let past customs mislead you.

The Dimensionair is the only air gage built with enough precision to permit you to use a single master.

When the Plug Wears You're Still Safe with the Dimensionair

FIRST. This is so because the Dimensionair's greater measuring range allows greater clearance which in turn results in less plug wear. (The Dimensionair Range is .003" on a 2500 to 1 magnification.)

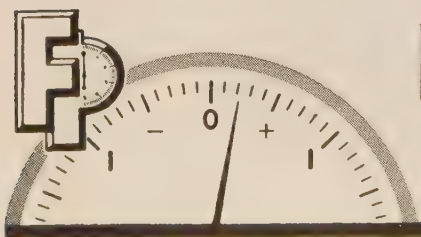
SECOND. Only jet wear can change calibration. Dimensionair jets can't wear because they are deeply recessed into the plug body. (On Dimensionair Plugs each jet is .003" below the plug surface.) Hence, a plug can be worn a great deal more than usual without any fear of wearing into the face of the jets.

THIRD. When a plug eventually wears to the danger point you will be warned because the gage will clearly show that the readings are no longer stable when

you test the plug in the master ring.

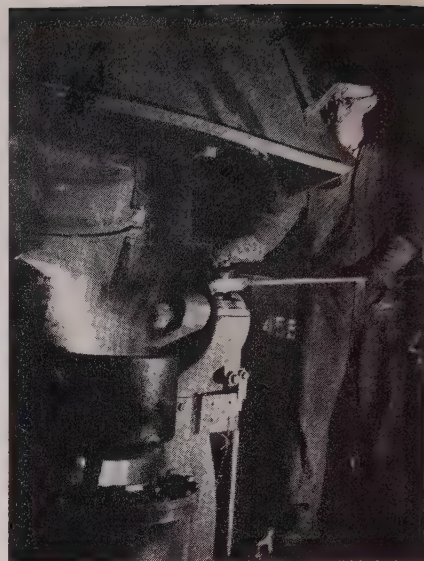
FOURTH. Because the jets are located so much deeper than has been customary, they are protected from damage and because the jet holes are larger, there is less danger of the holes becoming clogged with dirt.

A single master is common practice in using Dial Indicators and other types of precision indicating gages. The inherent precision of the Dimensionair makes it possible for you to continue this practice. Those who already own Dimensionairs find this to be true. It is worth your while to learn how satisfactory it is to use the Dimensionair. **FEDERAL PRODUCTS CORPORATION**, 1217 Eddy St., Providence 1, R. I.



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Preprocessing Sample

Before a bar or billet of brass is released for processing, a sample is taken from each heat for analysis. Here the process is seen beginning at Chase Brass & Copper Co.'s mill at Waterbury, Conn., where a sample, ladled from the molten metal, will be milled to produce chips for later spectrographic and chemical testing.

Stanwood president, is expected to be a prime field for the process as it contains many features sought by automotive engineers. It is an ideal corrosion protective undercoat for standard finishes which, in addition to forming an excellent bond between metal and finish coat, has flexibility to maintain its bonding power and corrosion protection after considerable deformation.

One of the important uses of this process will be in reducing loss of metallic materials by rust during the time between manufacture and use.

Low Temperature Data Related

Comprehensive correlation of data available on low temperature properties of metals is reported after a two-day conference on materials and design for low-temperature service held recently at Ft. Belvoir, Va. Participating were the Scientific Council of Engineer Research & Development Laboratories, Naval Ordnance Laboratories and National Bureau of Standards with several industrial and research organizations.

Army engineers report that the summary of information points up



How to speed your hot repairs!

You can cut excessive down-time for electric or open hearth bottom repairs when you use dependable Permanente 84 *periclase* ramming and patching mix.

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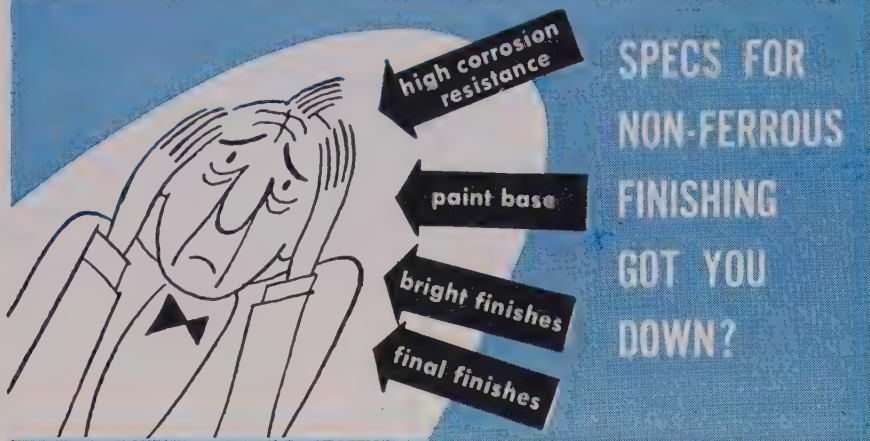
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"Scratch-Damage" Out

LOCKHEED Aircraft Corp., Burbank, Calif., is saving up to \$35,000 monthly by using a new strippable vinyl plastic protective coating to prevent damage to aircraft parts during production.

All aluminum sheet stock up to 0.091-inch thick is sprayed with the supertough plastic coat as it travels on a conveyor line. The covering remains on the metal until the aircraft is completed and ready for painting.

Advantages cited: An estimated 65 per cent saving in "scratch-damage" costs; greater durability than any other coating tried; about 50 per cent greater elasticity; and imperviousness to sunlight and moisture, eliminating corrosion.

gaps in working knowledge that will serve as a guide to further projects. It will also be useful to supplement engineering handbooks.

Detailed results of the conference will be published by Office of Technical Services, U. S. Department of Commerce.

Graphite Coat Cuts Sinter Loss

Aqueous dispersion of colloidal graphite is being used to prevent powdered metal clutch plate compacts from sintering together in the oven. Application is made by S. K. Wellman Co., Cleveland, which reports that the slippery dry film produced by graphite is unaffected by any temperature met in the sintering oven. Result is a marked decrease in compact rejects.

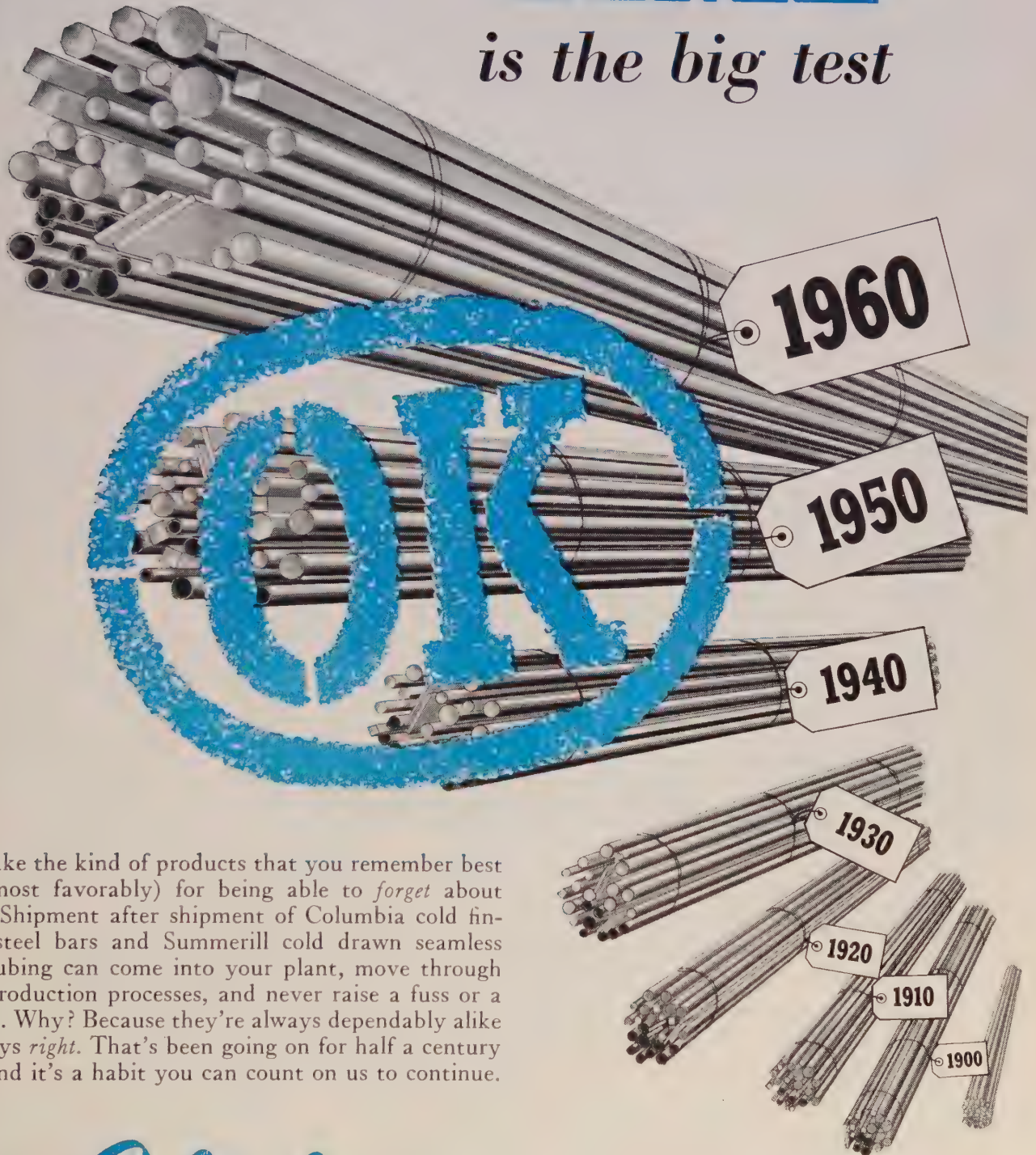
Compacts are made from a mixture of fine, powdered metal and graphite, compressed into shape of metal clutch plates. These are placed in the electric oven and sintered to metal rings, one compact to either side of the ring.

Because rings are stacked in the oven, it becomes necessary to prevent top compact of one unit from sintering together with the bottom compact of the next ring above. To do this, the firm heats disks with infra-red rays in a special conveyor. A mixture of two parts Prodag, made by Acheson Colloidal Co., Pt. Huron, Mich., and one part water is sprayed on as separators pass the spray booth.

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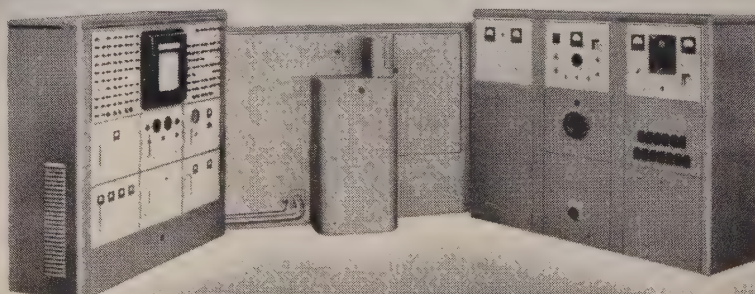
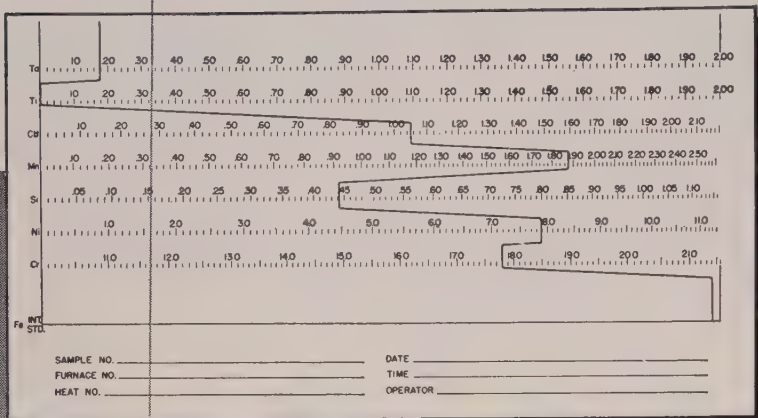
SPECIALIZING IN COLD FINISHED STEEL BARS and SEAMLESS STEEL TUBING

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THE INSIDE STORY ON STAINLESS STEEL

Shown below is a multiple-copy graphic record of a typical stainless steel chemical analysis made on an ARL Production Control Quantometer.* Accurate percentages of elements present in the alloy are recorded permanently in pen-and-ink in less than two minutes! And steel is only one of many metals and inorganic compounds which the unique ARL Quantometers are controlling daily as to routine chemical analysis in many types of industries.



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metals and other inorganic materials

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This instrument, pioneered and perfected by ARL engineers, is invaluable in helping to speed the production of critical materials and improving laboratory controls. It is the most advanced type of spectrometer yet developed and deserves your most serious consideration. Write for descriptive brochure.

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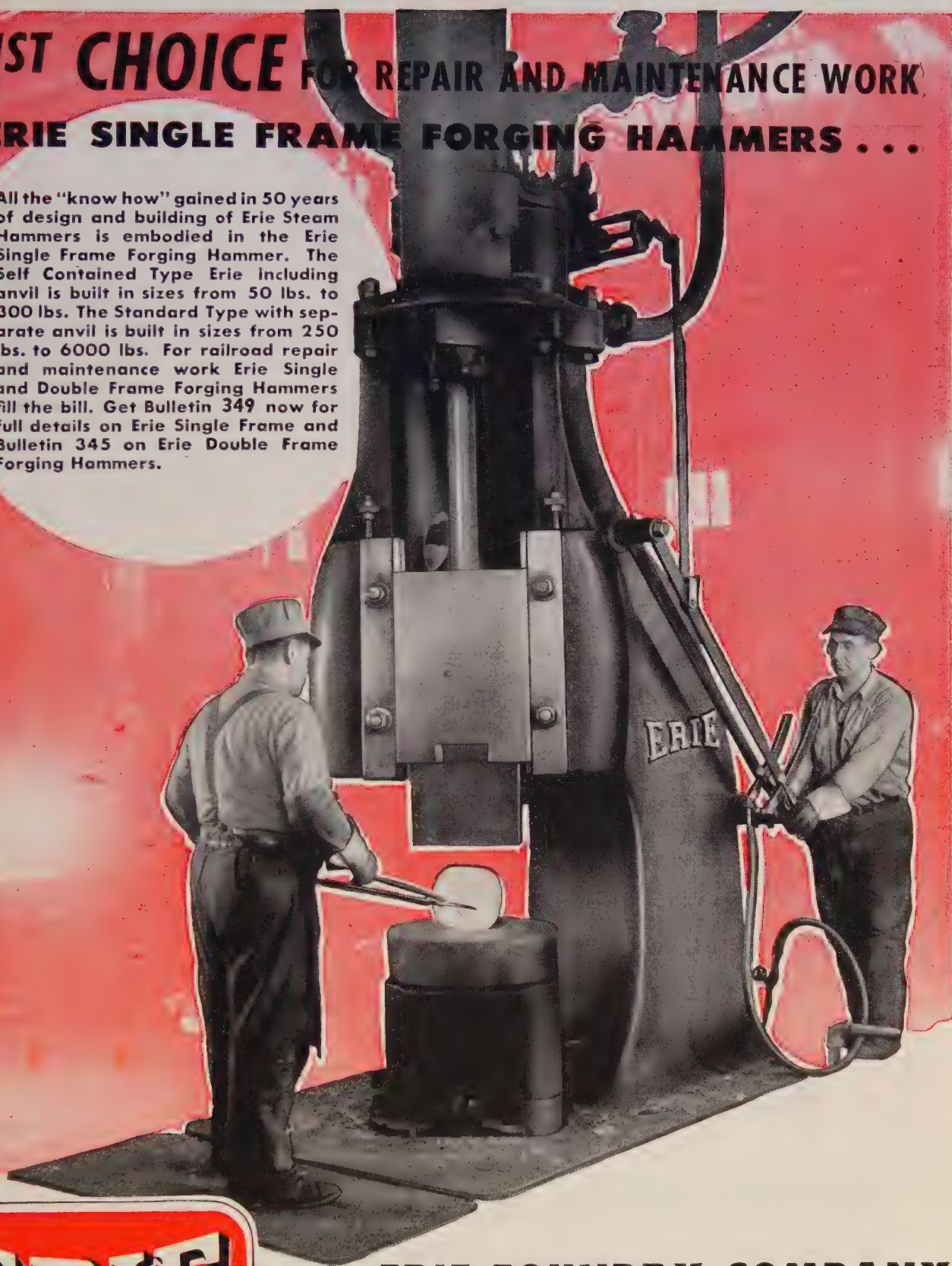
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CALENDAR OF MEETINGS

- August 11-13, Society of Automotive Engineers:** National West Coast meeting, Fairmont Hotel, San Francisco. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.
- August 19-22, American Institute of Electrical Engineers:** Pacific general meeting, Phoenix, Ariz. Institute address: 33 W. 39th St., New York 18. Secretary: H. H. Henline.
- September 3-13, Centennial of Engineering:** Convocation Period: General manager, F. W. Edwards. Address: 57th St. & S. Shore Drive, Chicago 37.
- September 4-6, American Institute of Chemical Engineers:** Palmer House, Chicago. Institute address: 120 E. 41st St., New York 17. Secretary: Stephen L. Tyler.
- September 8-10, American Standards Association:** National standardization conference, Museum of Science & Industry, Chicago. Association address: 70 E. 45th St., New York 17. Secretary: G. F. Hussey Jr.
- September 8-12, Instrument Society of America:** Annual fall meeting and exhibit, Public Auditorium & Hotel Cleveland, Cleveland. Society address: 921 Ridge Ave., Pittsburgh 12. Secretary: Richard Rimbach.
- September 9-11, Society of Automotive Engineers:** National tractor meeting, Hotel Schroeder, Milwaukee. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.
- September 9-13, American Chemical Society:** Chicago Section: National chemical exposition, Chicago Coliseum, Chicago. Address: 86 E. Randolph St., Chicago 1.
- September 11, American Iron & Steel Institute:** Regional technical meeting, Palmer House, Chicago. Institute address: 350 Fifth Ave., New York 1. Meeting director: Frank Raymond.
- September 14-17, National Automatic Merchandising Association:** Annual meeting and exhibit, Palmer House, Chicago. Association address: 7 S. Dearborn St., Chicago. Secretary: C. S. Darling.
- September 14-19, American Chemical Society:** Fall meeting, Atlantic City, N. J. Society address: 1155 16th St. NW, Washington, D.C. Executive secretary: Alden H. Emery.
- September 14-20, Concrete Reinforcing Steel Institute:** Semi-annual fall meeting, The Broadmoor, Colorado Springs, Colo. Institute address: 38 S. Dearborn St., Chicago 3. Secretary: H. C. Delzell.
- September 15-17, Allied Railway Supply Association:** Annual meeting, Hotel Sherman, Chicago. Association address: 109 N. Wabash Ave., Chicago 2. Secretary: Charles J. Well.
- September 19, The Wire Association, Nonferrous Division:** First regional meeting, Elton Hotel, Waterbury, Conn. Association address: 453 Main St., Stamford, Conn. Executive secretary: Richard E. Brown.
- September 22-23, Steel Founders' Society of America:** Fall meeting, The Homestead, Hot Springs, Va. Society address: 920 Midland Bldg., Cleveland 15. Secretary: F. Kermet Donaldson.
- September 22-24, National Truck Body Manufacturers Association:** Annual meeting, Muehlebach Hotel, Kansas City, Mo. Association address: DuPont Circle Bldg., Washington. Secretary: Shipley D. Burton.
- September 22-25, American Mining Congress:** Metal & nonmetallic mineral mining conference, Denver. Congress address: 1100 Ring Bldg., Washington 6. Secretary: Julian Conover.
- September 29-30, American Machine Tool Distributors Association:** Annual meeting, The Cavalier, Virginia Beach, Va. Association address: 1900 Arch St., Philadelphia 3. Executive secretary: Thos. A. Fernley.
- September 29-Oct. 2, American Institute of Steel Construction Inc.:** Annual convention, Empress Hotel, Victoria, B. C. Institute address: 101 Park Ave., New York 17. Executive vice president: L. Abbett Post.
- September 30-October 3, Association of Iron and Steel Engineers:** Fall meeting and exhibit, Hotel Statler and Public Auditorium, Cleveland. Association address: 1010 Empire Bldg., Pittsburgh 22. Director: T. V. Esch.

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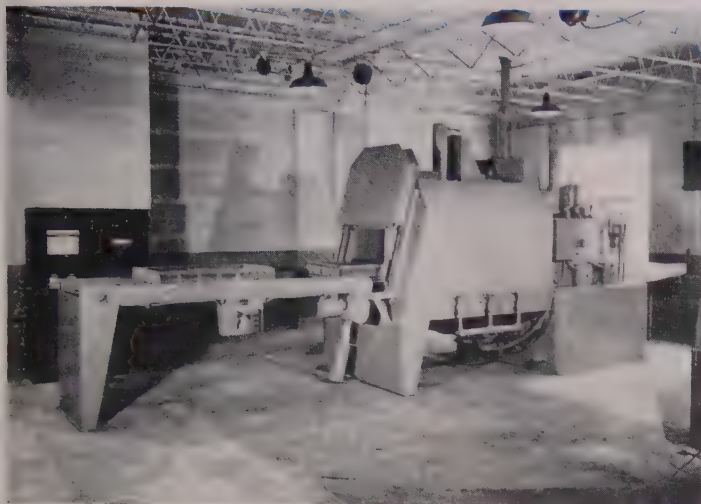
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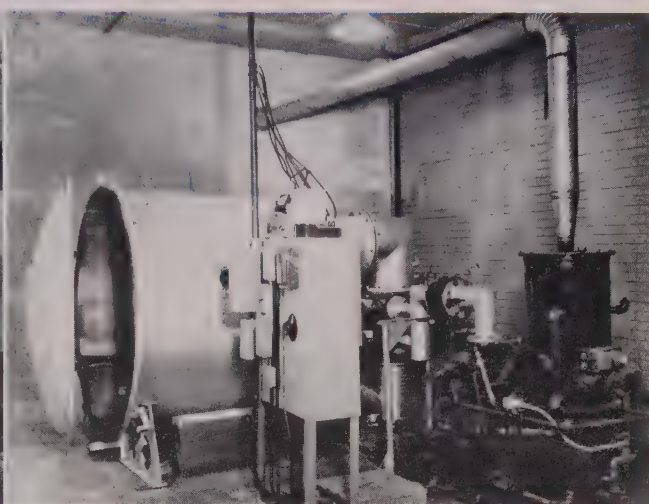
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New Products and Equipment



ELECTRIC OR GAS-FIRED OPERATION

... features automatic control and transfer of work



TANK COATER 5½ FEET DIAMETER

... increases load size, handles larger pieces

Production Heat Treating Unit

USE REPLY CARD—CIRCLE No. 1

Heat-treating unit with 500 pounds per hour capacity is announced by Ipsen Industries Inc., Rockford, Ill. Available for either electric or gas-fired operation, model T-500 features automatic sealed atmosphere and temperature control and automatic transfer of work from heat through the quenching or cooling cycle. Semi-automatic loader is standard equipment, with loading space for two work trays.

Unit is made with quench tank direct-connected to the heating chamber, separated by an automatic hydraulic-operated intermediate door. Recessed in the hearth, power driven endless chains equipped with protruding lugs transfer work trays from the heating chamber onto an elevator rack over the quench tank. Both furnaces and quenching or cooling chambers are operated in a sealed controlled atmosphere supplied by endothermic generator equipment. Work is transferred from heat to the quenching chamber without breaking the atmosphere seal.

Transfer Cleans Hydraulic Oils

USE REPLY CARD—CIRCLE No. 2

Two-stage portable transfer unit made for cleaning hydraulic oils in machine tools is offered by J. N. Fauver Co. Inc., 49 W. Hancock, Detroit 1, Mich. Filtration unit

employs a Yale & Towne pump, with a two stage filter setup for cleaning particles to 25 microns. All tubing and Parker fittings are built to JIC standards; 1½-inch hose assemblies are provided for quick assembly to the tanks. Circulation is at a rate of 10 gallons per minute.

General-Duty 1000-Pound Lift

USE REPLY CARD—CIRCLE No. 3

Langley Mfg. Co., 930 Cambridge St., Cambridge, Mass., offers its Powrlift, with 1000-pound load capacity for handling a variety of material. Electric model is driven by a ½-hp reversing-type motor with drum controller. Brakes are elevator-type and the platform is chain lifted, lowered at 17 fpm with automatic mechanical stops.

Battery model has a 6-v electric-hydraulic drive, with two automatic batteries wired in parallel. The latter lifts at 11 fpm with fast hydraulic lowering.

Vacuum Metallizing Equipment

USE REPLY CARD—CIRCLE No. 4

High vacuum coating equipment designed to gain higher production and lower costs is a development of National Research Corp., 70 Memorial Dr., Cambridge, Mass. Model includes a large tank coater, 5½ feet in diameter, that should offer advantages through increased load size and ability to handle larger pieces. Cycle time is not sacrificed because equipment is supplied with pumping systems that provide cycles even faster than those gained with smaller 4-foot diameter tanks.

Several pumping systems are offered that can be tailored to suit individual requirements. One system suggested by the company for maximum production consists of two 16-inch diffusion pumps, two 16-inch booster pumps and a 200-cfm mechanical roughing pump. The 5½-foot diameter tank can be pumped to coating pressures in less than 5 minutes with this system, under ideal conditions. Performance when working against heavy outgassing is said to be equally efficient.

Magnetic Clutch Assembly

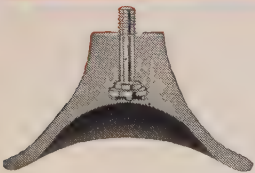
USE REPLY CARD—CIRCLE No. 5

Magnetic clutch, permanently adjusted, is incorporated in the automatic bar feed conveyor available for use with hack sawing machines made by Peerless Machine

REPLY CARDS

on page 113 will bring you more information on any new products and equipment in this section.

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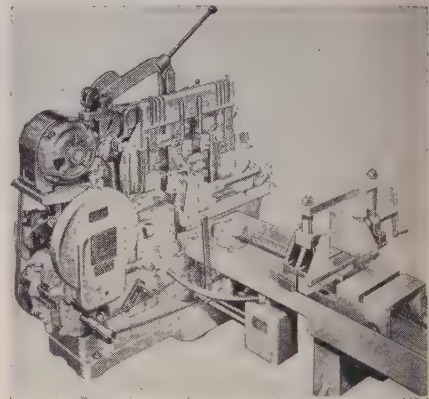
it pays to call us in. Circle ® fasteners, individually designed to your jobs, are made by modern methods to meet volume demands.

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Co., 1602 Junction Ave., Racine, Wis. Clutch assembly has three moving parts. These are the constantly rotating center clutch plate, driven by chain from the lower transmission shaft, and two armatures. One armature controls movement of the stock feed conveyor, the other operates the vise that clamps work during sawing.

Operating principle eliminates solenoids and mechanical linkage.



... controls automatic saw feed conveyor

When either magnet coil is energized, armature disk and rotor plate are attracted instantly, driving through friction in full, positive magnetic couple. No clutch adjustment or other attention is necessary during the life of the equipment.

Vertical Motor Series Expanded

USE REPLY CARD—CIRCLE No. 6

Single-phase hollowshaft units, types SCU-C and SCU-R, are added to the line of vertical motors made by U. S. Electrical Motors Inc., 200 E. Slauson Ave., Los Angeles 54, Calif. Initiated into this line is the accelerating type relay, an improved and simplified method of disconnecting the starting capacitors. To avoid possibility of bearing grease working into the relay, or of foreign particles being blown into contact points, unit is designed in an easily inspected, split-type outlet box located at the motor's side.

The two types are available in 1½ to 5 hp and at speeds of 1800 or 3600 rpm. They offer such features as asbestos winding protection, the company's Lubriflush lubrication, normalized castings, solid centricast rotor and down-



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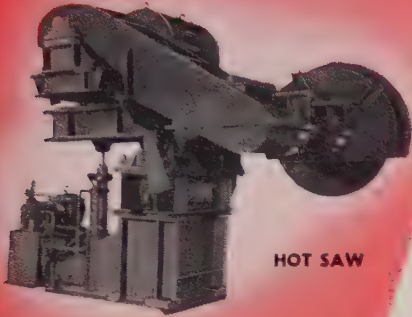
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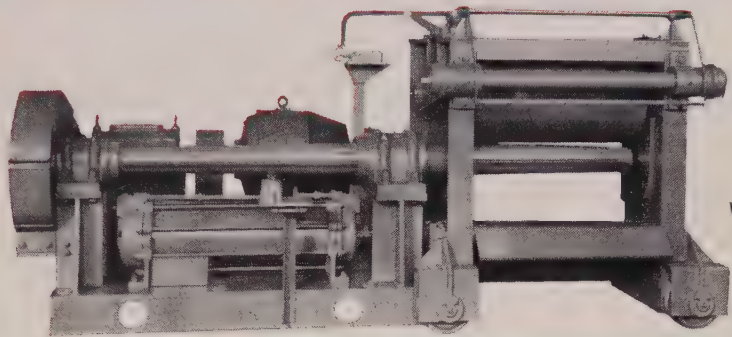


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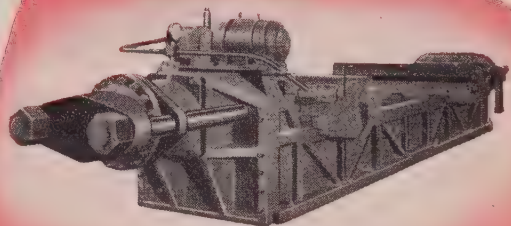
HOT SAW



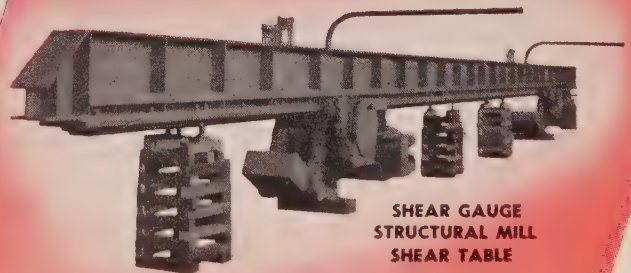
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- ▶ SHEET SCRUBBER AND CLEANING LINES
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- ▶ TILTING TABLES—Traveling and Lifting Tables
- ▶ Continuous PICKLING Lines—ROLLER LEVELERS
- ▶ FURNACE Charging Equipment—Furnace Pushers
- ▶ Strip Steel COILERS and REELS—SCRAP BALLERS
- ▶ RAILROAD Spike Forming Machines—ROLL LATHES
- ▶ Sheet GALVANIZING Lines—Wire Patenting Frames
- ▶ Stretcher Levelers—Angle and Shape Straighteners
- ▶ Rolling Mill Tables—Gear and Individual Motor Types
- ▶ PARALLOY ROLLS (Pinch, Coiler, Tension, Steel Mill)
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800,000# STRETCHER LEVELER



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STRUCTURAL MILL
SHEAR TABLE



PARALLOY ROLLERS

*Machinery Built to Customers
Design and Detail Drawings*

The Youngstown Foundry & Machine Co.

OVER SIXTY YEARS OF SERVICE TO THE STEEL INDUSTRY

Youngstown, Ohio



7*

draft ventilation. Included also is a reverse protection clutch and weatherproof housing.

Truck Clamp Handles Rolls

USE REPLY CARD—CIRCLE No. 7

Hydraulically actuated roll handling assembly for its line of fork trucks is announced by Mercury Mfg. Co., 4044 S. Halsted St., Chicago 9, Ill. Entire clamp assembly can be installed as a unit in place of standard forks. Clamp

involves a flipper arrangement designed to pick up rolls placed horizontally without blocking and without employing the special forward tilt range usually incorporated in a roll handling chassis. It is also possible to break out rolls from tightly packed shipments by sliding them sideways through use of the flipper movement. Clamps are available for handling rolls weighing a maximum 5000 pounds. Special hydraulic system, which includes a locking valve in the clamp-

ing cylinder and a pressure switch in the pump motor circuit, maintains continuous positive clamping action.

Power Squaring Shears

USE REPLY CARD—CIRCLE No. 8

Cutting lengths of 4, 6, 8 and 10 feet are included in a series of 1/4-inch power squaring shears announced by Wysong & Miles Co., Greensboro, N. C. Back gage is ball-bearing, precision, adjustable to 0.0078-inch by front operated handwheel. Roller and cam provide hold-down action. Individual compression springs in each hold-



... includes 4 to 10-foot cutting lengths

down foot compensate for varying thicknesses in metal being sheared. A full-length open space between hold-down and knife-bar makes the cutting line clearly visible.

To insure accurate shearing, surfaces where end frames and bed join are hand scraped for perfect bearing. In assembly, bed is squared in all directions. To provide accurate measure from cutting line, adjustable stainless steel scales are embedded in various positions on the table surface.

Portable Tensile Tester

USE REPLY CARD—CIRCLE No. 9

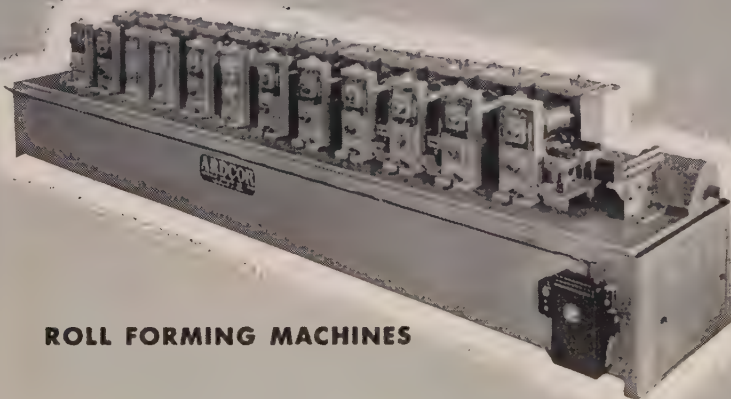
Small hydraulic tensile tester, offering advantages of portability and operating simplicity within its 4000-pound capacity, is introduced by Cal-Testing Machine Co., 2735 S. Robertson Blvd., Los Angeles 34, Calif. Pulling action is taken directly from the ram rather than from push-pull construction through a cross-head. Thus, friction from lateral pressure is eliminated. Moving grip is suspended from piston's center, further assuring a frictionless, true axial pull. Both grips are self-aligning.

Piston and cylinder are ground and of packless type. No pressure seals are employed. Cylinder room is also used for reservoir, eliminat-

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PUNCH TYPE CUT-OFFS

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— for all makes of machines



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20700 St. Clair Avenue · Cleveland 17, Ohio

ing unnecessary weight and space. Wedge tight grips are said to provide a time saving design improvement.

Fork Scoop Attachment

USE REPLY CARD—CIRCLE No. 10

Increased versatility of its standard fork trucks is gained by Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland 3, O., through design of a hydraulically-powered scoop that permits handling varied dry bulk materials. Dimensions and capacities vary with the type of material to be handled and truck size to which scoop is attached.

Model designed for use on a 4000-pound capacity truck has



... handles varied dry, bulky materials

maximum scoop capacity of 25 cu ft, or 3200 pounds. Models are also available for 2000 and 6000-pound capacity trucks. To facilitate loading and dumping, a double acting hydraulic cylinder controlled by a valve on the truck's cowl provides positive control of the scoop body.

Transmission Line Expanded

USE REPLY CARD—CIRCLE No. 11

Addition of the model 18 to its line of infinitely variable speed transmissions is announced by Graham Transmissions Inc., 3754 N. Holton St., Milwaukee 12, Wis. Micrometer control is furnished as standard with this model. One turn of the control handle is made for each of 40 gradations on the dial. Micrometer handle has 10 gradations that permit desired speed to be read accurately to 1/400 dial periphery.

Complete assembly of variable

speed drive, motor, reduction and control mounts on the driven machine with only four bolts. Transmission series is designed for operation at 1800 rpm input without use of auxiliary spring loading.

Laminated Plastic Magnifier

USE REPLY CARD—CIRCLE No. 12

Model 220 magnifier, offered by Larrimore Sales Co., St. Louis 1, Mo., has six power Achromatic magnification with a flat clear 2-inch field of vision. It is a port-

able unit made of laminated plastic with a clear lucite base.

Air-Operated Valve

USE REPLY CARD—CIRCLE No. 13

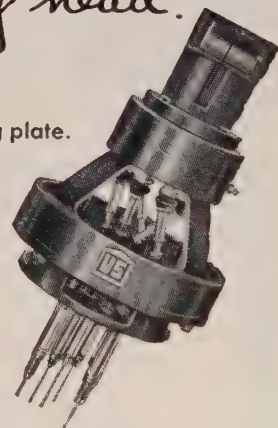
A pneumatically-operated butterfly valve for control of air, water or steam flow is announced by Industrial Division, Minneapolis-Honeywell Regulator Co., Philadelphia, Pa. Pneumatic valve motor is a Grad-U-Motor power unit and it operates on a controlled air pressure range of 0 to 15 psi.

COMPARE THE PRICE
AND PERFORMANCE
and you'll rely on us for any
type of multiple spindle fixed
center, adjustable or individual
lead screw tapping head.

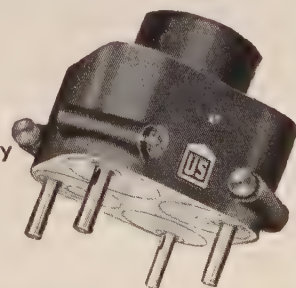
Universal joint with slip spindle fixed locating plate.



Two spindle head unit—one spindle fixed, the other spindle adjustable for the fixed positions.




Single eccentric type for equally spaced holes on bolt circles.



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REAM HOLES WITHIN .0002"!

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WRITE OR PHONE FOR IMMEDIATE SHIPMENT

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ROCKFORD, ILLINOIS

Adjustable mechanical stops provided on the motor enable wing rotation to be limited for special applications.

Bushing for Sheave

USE REPLY CARD—CIRCLE No. 14

Magic-Grip bushing is announced by Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., for its stationary-control, wide-range Vari-Pitch sheave. It makes possible quick and easy installation or removal of sheave and permits mounting it on the shaft so that adjusting control mechanism is either toward the motor bearing or away from it.

Flexible Couplings

USE REPLY CARD—CIRCLE No. 15

A line of small, compact, cast iron bushed type flexible couplings for applications up to 10 hp, is announced by Maurey Mfg. Corp., Chicago 16, Ill. They are available in three bore sizes for use with the company's three standard types of interchangeable bushings.

Metal Degreaser

USE REPLY CARD—CIRCLE No. 16

A clean-drying safety solvent for rapid solvent dry degreasing of parts and engine accessories has been developed by Curran Corp., Lawrence, Mass. Designated as Flo, it is especially formulated for use in recirculation solvent degreasing machines using a flow of solvents over parts while they are being brushed.

Valves, Elbows, Connectors

USE REPLY CARD—CIRCLE No. 17

Dexter Automatic Products Co., Dexter, Mich., announces a line of steel shut-off valves, elbows and connectors. Products are machined from steel and cadmium plated to prevent rust and corrosion. Fittings are available in threaded or barbed connections, flared or com-

**USE A
REPLY CARD**

Just circle the corresponding number of any item in this section for more information.

pression type, 1/8-inch pipe to 3/16-inch line. Valves are made with or without strainers.

Flange Sleeve Bearing Unit

USE REPLY CARD—CIRCLE No. 18

Designed for light shaft duty and power take off application on all types of sheet metal fabrications is the self-aligning, sleeve bearing unit offered by Randall Graphite Bearings Inc., Lima, O. Oil is fed to bearing surface by capillary action of sintered or graphited bushing.

Acetylene-Air Gas Torch

USE REPLY CARD—CIRCLE No. 19

Torch-O-Matic, an automatic acetylene-air gas torch, is available from Velocity Power Tool Co., Pittsburgh 8, Pa. It lights at squeeze of trigger and shuts off upon release. Trigger can also be locked open for continuous flame. Device provides instantaneous heat up to 2800 degrees. Combustion tubes are available in three sizes.

Geiger-Counter Attachment

USE REPLY CARD—CIRCLE No. 20

A Geiger counter attachment for Weissenberg goniometers is announced by North American Philips Co. Inc., Mt. Vernon, N. Y. It is designed for use as an attachment to cameras being used in conjunction with the counting circuits and the recorder as employed with the company's x-ray spectrometer.

Foundry Grade Zircon Sand

USE REPLY CARD—CIRCLE No. 21

Foote Mineral Co., Philadelphia 44, Pa., offers a grade of zircon sand adapted for foundry use. It can be used as a replacement for silica sand in applications where there is a burn-in problem. Zircon sand has a high rate of heat diffusion and, therefore, can be used in strategic locations to control cooling rates.



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SAVINGS OF 30% and more on your abrasive costs are possible with longer-lasting, faster-cutting Jewel Brand Coated Abrasive Belts. Add to this the increased productivity and lower labor costs, and you can easily see why it's well worth your while to use Jewel Brand Coated Abrasives.

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PRODUCTS, INC.**
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South Braintree 85,
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Yes, I want to make the Waste Barrel Test!

Enclosed is sample of used belt from our plant.

NAME

POSITION

COMPANY

TYPE OF PRODUCT

MATERIAL

WE USE APPROXIMATELY BELTS PER MONTH

BELT LENGTH

USE A
REPLY CARD

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LEADERS IN IRON AND STEEL SCRAP SINCE 1889

WATCH the military for a clue as to how fast you can get steel after the steelworkers' strike.

The generals and admirals think all their steel needs should be satisfied first. The steel industry feels that from an operating standpoint this is not practical, and from the standpoint of preservation of the country and its economy it is not advisable.

BLUEPRINTED—The steel industry's recommendations on how post-strike distribution of steel should be made are on file with the National Production Authority. To what extent these recommendations will be accepted by the government will depend considerably on how long the steelworkers' strike continues. The longer it runs the more desperate the the military will become and the more insistent it will be its demands of "me first."

If the military wins its way, the makers of war materiel will get steel first after the strike; the producers of civilian goods will wait.

SOME FOR ALL—If the steel industry's suggestions are followed, no segment of the economy would be cut off from steel but the defense program would be given preferential treatment.

Here's the six-point program the steel industry recommends: 1. Producers shall schedule all defense program orders accepted for delivery through November, 1952, so as to make shipment by the last day of that month. (This date would have to be extended unless the strike ends immediately.) 2. Direction 13 to CMP Regulation 1, which was designed to give special preferential status to certain third-quarter defense programs in plants of producers who were operating during the steel strike, should be revoked, and defense program orders for third-quarter delivery, which are still unplaced, should be handled by individual directives. 3. Beginning with October, 1952, each producer would reserve solely for defense program orders a stated tonnage of each controlled steel mill product. 4. Consumers' inventories should be held down until an adequate flow of steel is forthcoming. 5. No new program

determinations should be made by NPA-DPA for the fourth quarter of 1952. 6. To help nondefense program steel consumers plan forward operations, authorized controlled materials allotments for fourth quarter of 1952 should be valid for placement for delivery in any month in the fourth quarter of 1952 or during January and February, 1953.

IMPORTANT COG—The steel industry contends that the maintenance of the civilian economy is in itself a support to the defense effort. This support would be weakened, the industry maintains, if only defense needs are rolled. The most efficient utilization of steel producing facilities, the industry says, can be accomplished best when producing facility schedules represent a broad range of specifications, as contrasted with an overwhelming load of special requirements encountered in defense orders.

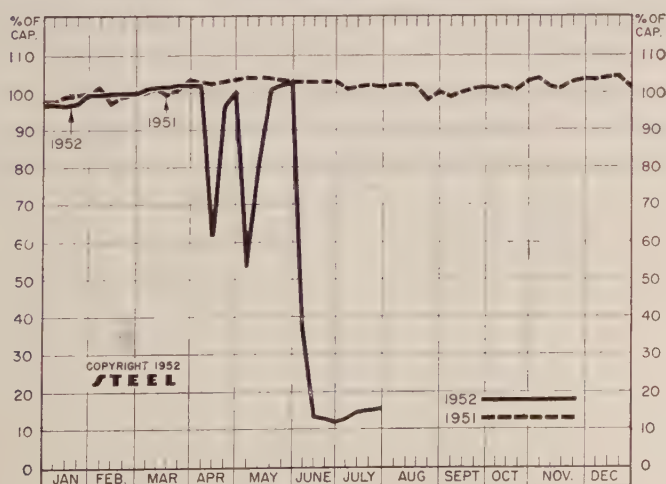
Meanwhile, some of the big consumers of steel, including the automobile industry, are informing the steel companies as to what orders they would like to have filled first when the strike is over. The auto industry also continues to seek rolling space for conversion steel.

ONLY ONE ANSWER—There's increased interest in foreign steel but it can be only a partial answer to a steel consumer's needs. The only real answer can be full resumption of steel production in the United States. In the absence of this, more and more metalworking plants are slowing or stopping operations.

The small portion of the steel industry continuing to operate increased the production rate in the week ended July 26 to the highest level since the strike began. The rate was 15.5 per cent of the nation's capacity.

NEW THREAT—A threat to the meager steelmaking operations still going on is contained in the receding supply of ingot molds. The steelworkers' strike has hurt the production of them too. Other needs of a steel plant could conceivably become scarce also from the strike.

NATIONAL STEELWORKS OPERATIONS



DISTRICT INGOT RATES

Percentage of Capacity Engaged at Leading Production Points

	Week Ended July 26	Change	Same Week 1951	1950
Pittsburgh	7.5	- 0.5	94	101
Chicago	5.5	+ 0.5	104.5	102
Mid-Atlantic	17	0	101	97.5
Youngstown	6	0	105	107
Wheeling	49.5	- 1	94.5	98.5
Cleveland	0	0	101	94.5
Buffalo	0	0	104	104
Birmingham	0.5	0	100	100
New England	20	+ 2	94	92
Cincinnati	37	+ 4	101	106
St. Louis	96.5	+ 8.5	97	86.5
Detroit	49	0	101.5	107
Western	36	+ 3	105	98
Estimated national rate	15.5	+ 0.5	101.5	98.5

Based on weekly steelmaking capacity of 2,077,040 tons in 1952; 1,999,034 tons for 1951; 1,928,721 tons for second half, 1950; 1,906,268 tons for first half, 1950.

* Change from revised rate for preceding week.

Composite Market Averages

	July 24 1952	Week Ago	Month Ago	Year Ago	5 Yrs. Ago
FINISHED STEEL INDEX, Weighted:					
Index (1935-39 av.=100) ..	171.92†	171.92†	171.92†	171.92	120.39
Index in cents per lb.	4.657†	4.657†	4.657†	4.657	3.261
ARITHMETICAL PRICE COMPOSITES:					
Finished Steel, NT	\$106.32†	\$106.32†	\$106.32†	\$106.32	\$69.14
No. 2 Fdry, Pig Iron, GT ..	52.54	52.54	52.54	52.54	36.11
Basic Pig Iron, GT	52.16	52.16	52.16	52.16	35.61
Malleable Pig Iron, GT ...	53.27	53.27	53.27	53.27	36.79
Steelmaking Scrap, GT ...	42.67	42.50	41.50	44.00	39.08

Weighted finished steel index based on average shipments and Pittsburgh district prices of the following 14 representative products during 5-year base period 1935-39: Structural shapes, plates, rails, hot-rolled and cold-finished bars, pipe, wire, nails, tin plate, hot and cold-rolled sheets, galvanized sheets, hot and cold-rolled strip. For complete explanation see STEEL Sept. 19, 1949, p.54.

Arithmetical steel price composite based on same products as the weighted finished steel index with the exception of rails, cold-finished bars, galvanized sheets and hot-rolled strip.

Basic and No. 2 foundry pig iron composites are based on average prices at Pittsburgh, Bethlehem, Birmingham, Buffalo, Chicago, Cleveland, Granite City, Youngstown. Malleable composite based on same points except Birmingham.

Steelmaking scrap composite based on average prices of No. 1 heavy melting steel at Pittsburgh, Chicago and Philadelphia.

† Preliminary, pending 1952 tin plate contract price announcement.

Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED MATERIALS

	July 24 1952	Week Ago	Month Ago	Year Ago	5 Yrs. Ago
Bars, H.R., Pittsburgh	3.70	3.70	3.70	3.70	2.60
Bars, H.R., Chicago	3.70	3.70	3.70	3.70	2.60
Bars, H.R., del. Philadelphia	4.252	4.252	4.252	4.20	2.98
Bars, C.F., Pittsburgh	4.55	4.55	4.55	4.55	3.20
Shapes, Std., Pittsburgh	3.65	3.65	3.65	3.65	2.50
Shapes, Std., Chicago	3.65	3.65	3.65	3.65	2.50
Shapes, del. Philadelphia	3.93	3.93	3.93	3.91	2.64
Plates, Pittsburgh	3.70	3.70	3.70	3.70	2.65
Plates, Chicago	3.70	3.70	3.70	3.70	2.65
Plates, Coatesville, Pa.	4.15	4.15	4.15	4.15	2.80
Plates, Sparrows Point, Md.	3.70	3.70	3.70	3.70	2.65
Plates, Claymont, Del.	4.15	4.15	4.15	4.15	2.80
Sheets, H.R., Pittsburgh	3.60-75	3.60-75	3.60-75	3.60-75	2.50
Sheets, H.R., Chicago	3.60	3.60	3.60	3.60	2.50
Sheets, C.R., Pittsburgh	4.35	4.35	4.35	4.35	3.20
Sheets, C.R., Chicago	4.35	4.35	4.35	4.35	3.20
Sheets, C.R., Detroit	4.55	4.55	4.55	4.55	3.35
Sheets, Galv., Pittsburgh	4.80	4.80	4.80	4.80	3.55
Strip, H.R., Pittsburgh	3.75-4.00	3.75-4.00	3.75-4.00	3.75-4.00	2.50
Strip, H.R., Chicago	3.50	3.50	3.50	3.50	2.50
Strip, C.R., Pittsburgh	4.65-5.35	4.65-5.35	4.65-5.35	4.65-5.35	3.20
Strip, C.R., Chicago	4.90	4.90	4.90	4.90	3.30
Strip, C.R., Detroit	4.85-5.60	4.85-5.60	4.85-5.60	4.35-5.60	3.35
Wire, Basic, Pittsburgh	4.85-5.10	4.85-5.10	4.85-5.10	4.85-5.10	3.425
Nails, Wire, Pittsburgh	5.90-6.20	5.90-6.20	5.90-6.20	5.90-6.20	3.75
Tin plate box, Pittsburgh	\$8.70	\$8.70	\$8.70	\$8.70	\$5.75

SEMI-FINISHED

Billets, forging, Pitts.(NT)	\$66.00	\$66.00	\$66.00	\$66.00	\$50.00
Wire rods, $\frac{3}{8}$ -" Pitts.	4.10-30	4.10-30	4.10-30	4.10-30	2.55

PIG IRON, Gross Ton

Bessemer, Pitts.	\$53.00	\$53.00	\$53.00	\$53.00	\$37.00
Basic, Valley	52.00	52.00	52.00	52.00	36.00
Basic, del. Phila.	56.75	56.75	56.75	56.49	38.72
No. 2 Fdry, Pitts.	52.50	52.50	52.50	52.50	36.50
No. 2 Fdry, Chicago	52.50	52.50	52.50	52.50	36.00
No. 2 Fdry, Valley	52.50	52.50	52.50	52.50	36.50
No. 2 Fdry, del. Phila.	57.25	57.25	57.25	56.99	39.22
No. 2 Fdry, Birm.	48.88	48.88	48.88	48.88	33.38
No. 2 Fdry (Birm.) del. Cin.	56.43	56.43	56.43	55.33	38.25
Malleable, Valley	52.50	52.50	52.50	52.50	36.50
Malleable, Chicago	52.50	52.50	52.50	52.50	36.50
Charcoal, Lyles, Tenn.	66.00	66.00	66.00	66.00	43.00
Ferromanganese, Etna, Pa.	188.00	188.00	188.00	188.00	140.25*

* F.o.b. cars, Pittsburgh.

SCRAP, Gross Ton (including broker's commission)

No. 1 Heavy Melt, Pitts.	\$44.00	\$44.00	\$44.00	\$45.00	\$38.50
No. 1 Heavy Melt, E. Pa.	41.50	41.00	38.00	43.50	39.50
No. 1 Heavy Melt, Chicago.	42.50	42.50	42.50	43.50	39.25
No. 1 Heavy Melt, Valley	44.00	44.00	44.00	45.00	36.50
No. 1 Heavy Melt, Cleve.	43.00	43.00	43.00	44.00	37.75
No. 1 Heavy Melt, Buffalo.	37.00*	37.00*	37.00*	44.00	41.50
Rails, Re-rolling, Chicago	52.50	52.50	52.50	52.50	46.75
No. 1 Cast, Chicago	45.00	45.00	45.00	49.00†	43.50

* Nominal. † F.o.b. shipping point.

COKE, Net Ton

Beehive, Furn, Connisvl.	\$14.75	\$14.75	\$14.75	\$14.75	\$11.50-12.50
Beehive, Fdry, Connisvl.	17.00	17.00	17.00	17.50	14.00-15.00
Oven Fdry, Chicago	23.00	23.00	23.00	21.00	17.50

NONFERROUS METALS

Copper, del. Conn.	24.50	24.50	24.50	24.50	21.50
Zinc, E. St. Louis	15.00	15.00	15.00	17.50	10.50
Lead, St. Louis	15.80	15.80	15.80	16.80	14.80-14.85
Tin, New York	121.50	121.50	121.50	106.00	80.00
Aluminum, del.	19.00	19.00	19.00	19.00	15.00
Antimony, Laredo, Tex.	39.00	39.00	39.00	42.00	33.00
Nickel, refinery, duty paid.	56.50	56.50	56.50	56.50	35.00

PIG IRON

F.o.b. furnace prices quoted under GCPR as reported to STEEL. Minimum delivered prices are approximate and do not include 3% federal tax. Key to producing companies published on second following page.

PIG IRON, Gross Ton

	Basic	No. 2 Foundry	Malle- able	Besse- mer
Bethlehem, Pa. B2	\$54.00	\$54.50	\$55.00	\$55.50
New York, del.	58.28	58.78	58.78	58.78
Newark, del.	57.02	57.52	58.02	58.52
Philadelphia, del.	56.75	57.25	57.75	58.25
Birmingham District				
Alabama City, Ala. R2	48.38	48.88	48.88	48.88
Birmingham R2	48.38	48.88	48.88	48.88
Birmingham S9	48.38	48.88	48.88	48.88
Woodward, Ala. W15	48.38	48.88	48.88	48.88
Cincinnati, del.	56.43	56.43	56.43	56.43
Buffalo District				
Buffalo R2	52.00	52.50	53.00	53.00
Buffalo H1	52.00	52.50	53.00	53.00
Tonawanda, N.Y. W12	52.00	52.50	53.00	53.00
No. Tonawanda, N.Y. T9	52.00	52.50	53.00	53.00
Boston, del.	62.65	63.15	63.65	63.65
Rochester, N.Y., del.	55.02	55.52	56.02	56.02
Syracuse, N.Y., del.	56.12	56.62	57.12	57.12
Chicago District				
Chicago I-3	52.00	52.50	52.50	53.00
Gary, Ind. U5	52.00	52.00	52.50	52.50
Indiana Harbor, Ind. I-2	52.00	52.00	52.50	52.50
So. Chicago, Ill. W14	52.00	52.50	52.50	52.50
So. Chicago, Ill. Y1	52.00	52.50	52.50	52.50
So. Chicago, Ill. U5	52.00	52.00	52.50	53.00
Milwaukee, del.	54.17	54.67	54.67	55.17
Muskegon, Mich., del.	58.00	58.00	58.00	58.00
Cleveland District				
Cleveland A7	52.00	52.50	52.50	53.00
Cleveland R2	52.00	52.50	52.50	52.50
Akron, O., del. from Cleve.	54.61	55.11	55.11	55.61
Lorain, O. N3	52.00	52.00	52.00	53.00
Duluth I-3	52.00	52.00	52.50	52.50
Erie, Pa. I-3	52.00	52.50	52.50	53.00
Everett, Mass. E1	59.75	60.25	60.25	60.25
Fontana, Calif. K1	58.00	58.50	58.50	58.50
Seattle, Tacoma, Wash., del.	60.66	60.66	60.66	60.66
Portland, Ore., del.	60.66	60.66	60.66	60.66
Los Angeles, San Francisco, del.	60.16	60.66	60.66	60.66
Granite City, Ill. G4	53.90	54.40	54.90	54.90
St. Louis, del. (inc. tax)	54.65	55.15	55.65	55.65
Ironport, Utah C11	52.00	52.50	52.50	52.50
Geneva, Utah C11	52.00	52.50	52.50	52.50
Lone Star, Tex. L6	48.00	48.50	48.50	48.50
Minnequa, Colo. C10	54.00	55.00	55.00	55.00
Pittsburgh District				
Neville Island, Pa. P6	52.50	52.50	52.50	53.00
Pitts., N.&S. sides, Ambridge	53.87	53.87	53.87	54.37
Aliquippa, del.	53.54	53.54	53.54	54.04
McKees Rocks, del.	53.54	53.54	53.54	54.04
Lawrenceville, Homestead,	54.16	54.16	54.16	54.66
Wilmerding, Monaca, del.	54.69	54.69	54.69	55.19
Verona, Trafford, del.	54.95	54.95	54.95	55.45
Brackenridge, del.	54.95	54.95	54.95	55.45
Bessemer, Pa. U5	52.00	52.00	52.50	53.00
Clariton, Rankin, So. Duquesne, Pa. U5	52.00	52.00	52.00	52.00
McKeesport, Pa. N3	52.00	52.00	52.00	53.00
Monessen, Pa. P7	54.00	54.00	54.00	54.00
Sharpville, Pa. S6	52.00	52.00	52.50	53.00
Steelton, Pa. B2	54.00	54.50	55.00	55.50
Swedeland, Pa. A3	56.00	56.50	57.00	57.50
Toledo, O. I-3	52.00	52.50	52.50	53.00
Cincinnati, del.	57.47	57.97	57.97	57.97
Troy, N.Y. R2	54.00	54.50	55.00	55.50
Youngstown District				
Hubbard, O. Y1	52.00	52.50	52.50	52.50
Youngstown Y1	52.00	52.50	52.50	52.50
Youngstown U5	52.00	52.00	52.00	53.00
Mansfield, O., del.	56.65	57.15	57.15	57.65

* Low phos, southern grade.

PIG IRON DIFFERENTIAL

Silicon: Add 50 cents per ton for each 0.25% Si or percentage thereof over base grade, 1.75-2.25%, except on low phos iron on which base is 1.75-2.00%.

Phosphorus: Deduct 38 cents per ton for P content of 0.70% and over. Manganese: Add 50 cents per ton for each 0.50% manganese over 1% or portion thereof.

Nickel: Under 0.50% no extra; 0.50-0.74%, incl., add \$2 per ton and each additional 0.25%, add \$1 per ton.

BLAST FURNACE SILVER PIG IRON, Gross Ton

(Base 6.0-6.50% silicon; add \$1.50 for each 0.5% Si)	
Jackson, O. G2, J1	\$62.50
Buffalo H1	63.75

ELECTRIC FURNACE SILVER PIG IRON, Gross Ton

(Base 14.01-14.50% silicon; add \$1 for each 0.5% Si to 18%; \$1 for each 0.5% Mn over 1%; \$1 for each 0.045% max. P)	
Niagara Falls, N.Y. P15	\$88.00
Keokuk, Iowa, Openhearth & Fdry, frt. allowed K2	92.50
Keokuk, OH & Fdry, 12½ lb piglets, 16% Si, frt. allowed K2	95.50
Wenatchee, Wash., OH & Fdry, frt. allowed K2	92.50

CHARCOAL PIG IRON, Gross Ton

(Low phos semi-cold blast; differential charged for silicon over base grade; also for hard chilling iron Nos. 5 & 6)	
Lyles, Tenn. T3	\$66.00

LOW PHOSPHORUS PIG IRON, Gross Ton

Cleveland, intermediate, A7	\$57.00
Steelton, Pa. B2	60.00
Philadelphia delivered	63.55
Troy, N.Y. R2	60.00

Semifinished and Finished Steel Products

Mill prices quoted under GCPR as reported to STEEL, July 24, 1952; cents per pound except as otherwise noted. Changes shown in italics. Code numbers following mill points indicate producing company; key on next two pages.

INGOTS, Carbon, Forging (NT)		Lackawanna, N.Y. B2	4.45	PLATES, Carbon Steel		BARS & SMALL SHAPES, H.R., High-Strength Low-Alloy	Cleveland R2	3.70
Fontana, Calif. K1		Munhall, Pa. U5	4.45	Alabama City, Ala. R2		Albuquerque, Pa. J5	Emeryville, Calif. J7	4.45
Munhall, Pa. U5		So. Chicago, Ill. U5	4.45	Albuquerque, Pa. J5		Bessemer, Ala. T2	Fairfield, Ala. T2	3.70
Seattle S24				Ashland, Ky. (15) A10		Bethlehem, Pa. B2	Fontana, Calif. K1	4.40
INGOTS, Alloy (NT)				Bessemer, Ala. T2		Clairton, Pa. U5	Gary, Ind. U5	3.70
Detroit R7				Clairmont, Del. C22		Cleveland R2	Houston S5	4.10
Fontana, Calif. K1				Cleveland J5, R2		Fairfield, Ala. T2	Ind. Harbor, Ind. I-2, Y1	3.70
Houston S5				Coatesville, Pa. L7		Fontana, Calif. K1	Johnstown, Pa. B2	3.70
Midland, Pa. C18				Conshohocken, Pa. A3		Gary, Ind. U5	Kansas City, Mo. S5	4.30
Munhall, Pa. U5				Fairfield, Ala. T2		Ind. Harbor, Ind. I-2	Lackawanna, N.Y. B2	3.70
Seattle S24				Fontana, Calif. (30) K1		Indiana Harbor, Ind. Y1	Los Angeles B3	4.40
BILLETS, BLOOMS & SLABS				Gary, Ind. U5		Johnstown, Pa. B2	Milton, Pa. B6	4.55
Carbon, Rolling (NT)				Geneva, Utah C11		Lackawanna, N.Y. B2	Minneapolis, Colo. C10	4.50
Bessemer, Pa. U5				Houston S5		Los Angeles B3	Niles, Calif. P1	5.05
Clairton, Pa. U5				Ind. Harbor, Ind. I-2		Pittsburgh J5	Pittsburgh, Calif. C11	4.40
Ensley, Ala. T2				Johnstown, Pa. B2		Seattle B3	Pittsburgh J5	3.70
Fairfield, Ala. T2				Kansas City, Mo. S5		So. Duquesne, Pa. U5	Portland, Ore. O4	4.65
Fontana, Calif. K1				Lackawanna, N.Y. B2		So. San Francisco B3	Sand Springs, Okla. S5	4.60
Gary, Ind. U5				Los Angeles B3		Struthers, O. Y1	Seattle B3, N14	4.45
Johnstown, Pa. B2				Minneapolis, Colo. C10		Youngstown U5	So. Chicago, Ill. R2	3.70
Lackawanna, N.Y. B2				Munhall, Pa. U5			So. Duquesne, Pa. U5	3.70
Munhall, Pa. U5				Niles, Calif. (22) P1			So. San Francisco B3	4.45
So. Chicago, Ill. U5				Phoenixville, Pa. P4			Sparrows Point, Md. B2	3.70
So. Duquesne, Pa. U5				Portland, Ore. O4			Struthers, O. Y1	3.70
Carbon, Forging (NT)				Seattle B3			Torrance, Calif. C11	4.40
Bessemer, Pa. U5				So. Chicago, Ill. U5 W14			Youngstown R2, U5	3.70
Buffalo R2				So. San Francisco B3				
Canton, O. R2				Torrance, Calif. C11				
Clairton, Pa. U5				Weirton, W. Va. W6				
Cleveland R2				Alloy Stand. Shapes				
Conshohocken, Pa. A3				Clairton, Pa. U5				
Detroit R7				Fontana, Calif. K1				
Ensley, Ala. T2				Munhall, Pa. U5				
Fairfield, Ala. T2				So. Chicago, Ill. U5				
Fontana, Calif. K1				H.S., L.A. Stand. Shapes				
Gary, Ind. U5				Albuquerque, Pa. J5				
Geneva, Utah C11				Bessemer, Ala. T2				
Houston S5				Bethlehem, Pa. (14) B2				
Johnstown, Pa. B2				Clairton, Pa. U5				
Lackawanna, N.Y. B2				Fairfield, Ala. T2				
Los Angeles B3				Fontana, Calif. K1				
Munhall, Pa. U5				Gary, Ind. U5				
Seattle B3				Geneva, Utah C11				
So. Chicago R2, U5, W14				Ind. Harbor, Ind. I-2				
So. Duquesne, Pa. U5				Ind. Harbor, Ind. Y1				
So. San Francisco B3				Johnstown, Pa. B2				
Alloy, Forging (NT)				Lackawanna, N.Y. (14) B2				
Bethlehem, Pa. B2				Los Angeles B3				
Buffalo R2				Munhall, Pa. U5				
Canton, O. R2				Seattle B3				
Canton, O. (29) T7				So. Chicago, Ill. U5				
Conshohocken, Pa. A3				So. San Francisco B3				
Detroit R7				Struthers, O. Y1				
Fontana, Calif. K1				Wide Flange				
Gary, Ind. U5				Bethlehem, Pa. B2				
Houston S5				Clairton, Pa. U5				
Ind. Harbor, Ind. Y1				Fontana, Calif. K1				
Johnstown, Pa. B2				Lackawanna, N.Y. B2				
Lackawanna, N.Y. B2				Munhall, Pa. U5				
Los Angeles B3				So. Chicago, Ill. U5				
Massillon, O. R2				H.S., L.A. Wide Flange				
Midland, Pa. C15				Albuquerque, Pa. J5				
Munhall, Pa. U5				Lackawanna, N.Y. B2				
So. Chicago R2, U5, W14				Munhall, Pa. U5				
So. Duquesne, Pa. U5				So. Chicago, Ill. U5				
Struthers, O. Y1				PLATES, High-Strength Low-Alloy				
Warren, O. C17				Albuquerque, Pa. J5				
ROUNDS, SEAMLESS TUBE (NT)				Bessemer, Ala. T2				
Canton, O. R2				Clairton, Pa. U5				
Cleveland R2				Cleveland J5, R2				
Fontana, Calif. K1				Conshohocken, Pa. A3				
Gary, Ind. U5				Fairfield, Ala. T2				
Massillon, O. R2				Fontana, Calif. (30) K1				
So. Chicago, Ill. R2				Gary, Ind. U5				
So. Duquesne, Pa. U5				Geneva, Utah C11				
SHEET BARS (NT)				Ind. Harbor, Ind. I-2				
Fontana, Calif. K1				Ind. Harbor, Ind. Y1				
SKELP				Johnstown, Pa. B2				
Albuquerque, Pa. J5				Lackawanna, N.Y. B2				
Munhall, Pa. U5				Los Angeles B3				
Warren, O. R2				Minneapolis, Colo. C10				
Youngstown R2, U5				Monessen, Pa. P7				
WIRE RODS				No. Tonawanda, N.Y. B11				
Alton, Ill. L1				Pittsburgh, Calif. C11				
Alabama City, Ala. R2				Portsmouth, O. P12				
Buffalo W12				Roebbing, N.J. R5				
Cleveland A7				So. Chicago, Ill. R2				
Donora, Pa. A7				Sparrows Point, Md. B2				
Fairfield, Ala. T2				Sterling, Ill. (1) N15				
Fontana, Calif. K1				Struthers, O. Y1				
Houston S5				Torrance, Calif. C11				
Johnstown, Pa. B2				Worcester, Mass. A7				
Joliet, Ill. A7				SHEET STEEL PILING				
Los Angeles B3				Ind. Harbor, Ind. I-2				
Minneapolis, Colo. C10								
Monessen, Pa. P7								
No. Tonawanda, N.Y. B11								
Pittsburgh, Calif. C11								
Portsmouth, O. P12								
Roebbing, N.J. R5								
So. Chicago, Ill. R2								
Sparrows Point, Md. B2								
Sterling, Ill. (1) N15								
Struthers, O. Y1								
Torrance, Calif. C11								
Worcester, Mass. A7								
SHEET STEEL PILING								
Ind. Harbor, Ind. I-2								

MARKET PRICES

SHEETS, Cold-Rolled Steel

(Commercial Quality)	
Butler, Pa. A10	4.35
Cleveland J5, R2	4.35
Ecorse, Mich. G5	4.55
Fairfield, Ala. T2	4.35
Follansbee, W. Va. F4	5.35
Fontana, Calif. K1	5.30
Gary, Ind. U5	4.35
GraniteCity, Ill. G4	5.05
Ind. Harbor, Ind. I-2, Y1	4.35
Irvin, Pa. U5	4.35
Lackawanna, N.Y. B2	4.35
Middletown, O. A10	4.35
Pittsburg, Calif. C11	5.30
Pittsburgh J5	4.35
SparrowsPoint, Md. B2	4.35
Steubenville, O. W10	4.35
Warren, O. R2	4.35
Weirton, W. Va. W6	4.35
Youngstown Y1	4.35

SHEETS, Galv'd No. 10 Steel

AlabamaCity, Ala. R2	4.80
Ashland, Ky. (8) A10	4.80
Canton, O. R2	4.80
Dover, O. R1	5.50
Fairfield, Ala. T2	4.80
Gary, Ind. U5	4.80
GraniteCity, Ill. G4	5.50
Ind. Harbor, Ind. I-2	4.80
Irvin, Pa. U5	4.80
Kokomo, Ind. (13) C16	5.20
MartinsFerry, O. W10	4.80
Niles, O. N12	6.00
Pittsburg, Calif. C11	5.55
SparrowsPoint, Md. B2	4.80
Steubenville, O. W10	4.80
Torrance, Calif. C11	5.55
Weirton, W. Va. W6	4.80

SHEETS, Galvanized No. 10, High-Strength Low-Alloy

Irvin, Pa. U5	7.20
SparrowsPoint (39) B2	6.75

SHEETS, Galvannealed Steel

Canton, O. R2	5.35
Irvin, Pa. U5	5.35
Kokomo, Ind. (13) C16	5.75
Niles, O. N12	6.55

SHEETS, ZINCGRIP Steel No. 10

Butler, Pa. A10	5.05
Middletown, O. A10	5.05

SHEETS, Electro Galvanized

Cleveland R2 (28)	5.65
Niles, O. R2 (28)	5.65
Weirton, W. Va. W6	5.50

SHEETS, Zinc Alloy

Ind. Harbor, Ind. I-2	5.70
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SHEETS, Drum Body

Pittsburg, Calif. C11	4.30
Torrance, Calif. C11	4.30

SHEETS, Well Casing

Fontana, Calif. K1	5.10
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BLUED Stock, 29 ga.

Yorkville, O. W10	6.80
Follansbee, W. Va. (23) F4	6.85

TIN PLATE, Electrolytic (Base Box)

	0.25 lb	0.50 lb	0.75 lb
Aliquippa, Pa. J5	\$7.15	\$7.40	\$7.80
Fairfield, Ala. T2	7.25	7.50	7.90
Gary, Ind. U5	7.15	7.40	7.80
GraniteCity, Ill. G4	7.35	7.60	8.00
Ind. Harbor, Ind. I-2, Y1	7.15	7.40	7.80
Irvin, Pa. U5	7.15	7.40	7.80
Niles, O. R2	7.15	7.40	7.80
Pittsburg, Calif. C11	7.90	8.15	8.55
SparrowsPoint, Md. B2	7.25	7.50	7.90
Weirton, W. Va. W6	7.15	7.40	7.80
Yorkville, O. W10	7.15	7.40	7.80

SHEETS, SILICON, H.R. or C.R. (22 Ga.)

COILS (Cut Lengths 1/2 cut lower)	Field	Arma- ture	Elec- tric	Dyna- mo
BeechBottom W10 (cut lengths)	...	7.25	8.50	9.30
Brackenridge, Pa. A4	...	7.75	9.00	9.80
GraniteCity, Ill. G4 (cut lengths)	...	7.95	9.20	...
Ind. Harbor, Ind. I-2	6.95	7.25 (34)	...	...
Mansfield, O. E6 (cut lengths)	7.10	7.25	7.75	9.00
Niles, O. N12 (cut lengths)	...	6.75	7.25	...
Vandergrift, Pa. U5	...	7.25	7.75	9.00
Warren, O. R2	6.95	7.25	7.75	9.00
Zanesville, O. A10	...	7.25	7.75	9.00

SHEETS, SILICON (22 Ga. Base)

Coils (Cut Lengths 1/2 cut lower)	72	65	58	52
Transformer Grade				
BeechBottom W10 (cut lengths)	9.85	10.40	11.10	11.90
Brackenridge, Pa. A4	10.35	...	...	...
Vandergrift, Pa. U5	10.35	10.90	11.60	12.40
Warren, O. R2	10.35	...	...	...
Zanesville, O. A10	10.35	10.90	11.60	12.40

H.R. or C.R. COILS AND CUT LENGTHS, SILICON (22 Ga.)

	T-100	T-90	T-80	T-73
Butler, Pa. A10 (C.R.)	...	...	14.75	15.25
Vandergrift, Pa. U5	12.90	13.75	14.75	15.25

SHEETS, Enameling Iron

Ashland, Ky. (8) A10	4.65
Cleveland R2	4.65
Gary, Ind. U5	4.65
GraniteCity, Ill. G4	5.35
Ind. Harbor, Ind. I-2	4.65
Irvin, Pa. U5	4.65
Middletown, O. A10	4.65
Youngstown Y1	4.65

BLACK PLATE

(Base Box)	
Aliquippa, Pa. J5	\$6.25
Fairfield, Ala. T2	6.35
Gary, Ind. U5	6.25
GraniteCity, Ill. G4	6.45
Ind. Harbor, Ind. I-2, Y1	6.25
Irvin, Pa. U5	6.25
Niles, O. R2	6.25
Pittsburg, Calif. C11	7.00
SparrowsPoint, Md. B2	6.35
Warren, O. R2	6.25
Weirton, W. Va. W6	6.25
Yorkville, O. W10	6.25

HOLLOWARE ENAMELING

Black Plate (29 gage)	
Follansbee, W. Va. F4	5.85
Gary, Ind. U5	5.85
GraniteCity, Ill. G4	6.05
Ind. Harbor, Ind. Y1	5.85
Irvin, Pa. U5	5.85
Yorkville, O. W10	6.15

SHEETS, Culvert

No. 16	Alloy	Cu	Fe
Ashland, Ky. A10	5.60	...	...
Canton, O. R2	5.65	6.10	...
Fairfield, Ala. T2	5.60	5.85	...
Gary, Ind. U5	5.60	5.85	...
Indiana Harbor I-2	5.60	5.85	...
Irvin, Pa. U5	5.60	5.85	...
Kokomo, Ind. C16	6.25	...	...
MartinsFy, O. W10	5.85	...	...
Pittsburg, Cal. C11	6.35	...	...
SparrowsPt. B2	5.60	...	...
Torrance, Cal. C11	6.35	...	...

SHEETS, Culvert, No. 16

Pure Iron	
Ashland, Ky. A10	5.85
Fairfield, Ala. T2	5.85

SHEETS, Hot-Rolled Ingot Iron

18 Gage and Heavier	
Ashland, Ky. (8) A10	3.85
Cleveland R2	4.20
Ind. Harbor, Ind. I-2	3.85
Warren, O. R2	4.20

SHEETS, Cold-Rolled Ingot Iron

Cleveland R2	4.95
Middletown, O. A10	4.85
Warren, O. R2	4.95

SHEETS, Galvanized Ingot Iron

No. 10 flat	
Ashland, Ky. (8) A10	5.05
Canton, O. R2	5.55

SHEETS, ZINCGRIP Ingot Iron

Butler, Pa. A10	5.30
Middletown, O. A10	5.30

SHEETS, ALUMINIZED

Butler, Pa. A10	8.15
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TINPLATE, American 1.25 1.50

Coke (Base Box)	lb
Aliquippa, Pa. J5	\$8.45
Fairfield, Ala. T2	8.55
Gary, Ind. U5	8.45
Ind. Har. I-2, Y1	8.45
Irvin, Pa. U5	8.45
Pitts., Cal. C11	9.20
Sp. Pt., Md. B2	8.55
Warren, O. R2	8.45
Weirton, W. Va. W6	8.45
Yorkville, O. W10	8.45

MANUFACTURING TERNES

(Special Coated)	
Fairfield, Ala. T2	\$7.60
Gary, Ind. U5	7.50
Irvin, Pa. U5	7.50
SparrowsPoint, Md. B2	7.60
Yorkville, O. W10	7.50

SHEETS, LT. Coated Ternes, 6 lb

Yorkville, O. W10	\$8.40
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SHEET, Mfg. Ternes, 8 lb

(Commercial Quality)	
Gary, Ind. U5	\$9.50
Yorkville, O. W10	9.50

SHEET, Long Terme Steel

(Commercial Quality)	
BeechBottom, W. Va. W10	5.20
Gary, Ind. U5	5.20
Mansfield, O. E6	6.05
Middletown, O. A10	5.20
Niles, O. N12	6.00
Weirton, W. Va. W6	5.20

SHEETS, Long Terme, Ingot Iron

Middletown, O. A10	5.60
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ROOFING SHORT TERNES

(8 lb Coated)	
Gary, Ind. U5	9.50

STRIP, Hot-Rolled

High-Strength Low-Alloy	
Bessemer, Ala. T2	5.30
Conshohocken, Pa. A3	5.55
Ecorse, Mich. G5	5.95
Fairfield, Ala. T2	5.30
Fontana, Calif. K1	6.20
Gary, Ind. U5	5.30
Ind. Harb. Ind. I-2	5.30
Indiana Harbor, Ind. Y1	5.80
Lackawanna, N.Y. B2	4.95
Los Angeles (25) B3	6.05
Seattle B3	6.30
Sharon, Pa. S3	5.40
So. San Francisco (25) B3	6.05
SparrowsPoint, Md. B2	4.95
Warren, O. R2	5.30
Weirton, W. Va. W6	5.75
Youngstown Y1	5.80
Youngstown U5	5.30

STRIP, Cold-Rolled

High-Strength Low-Alloy	
Cleveland J5	6.70
Cleveland A7	6.55
Dover, O. G8	7.30
Fontana, Calif. K1	6.95
Lackawanna, N.Y. B2	6.40
Sharon, Pa. S3	6.55
SparrowsPoint, Md. B2	6.40
Warren, O. R2	6.55
Weirton, W. Va. W6	7.20
Youngstown Y1	7.05

STRIP, Hot-Rolled Carbon

Ala. City, Ala. (27) R2	3.50
Alton, Ill. L1	3.95
Ashland, Ky. (8) A10	3.50
Atlanta A11	4.05
Bessemer, Ala. T2	3.50
Bridgeport, Conn. (10) S15	4.00
Buffalo (27) R2	3.50
Butler, Pa. A10	3.50
Carnegie, Pa. S18	4.00
Conshohocken, Pa. A3	3.90
Detroit M1	4.40
Ecorse, Mich. G5	3.80
Fairfield, Ala. T2	3.50
Fontana, Calif. K1	4.75
Gary, Ind. U5	3.50
Houston, Tex. S5	4.90
Ind. Harbor, Ind. I-2, Y1	3.50
Johnstown, Pa. (25) B2	3.50
Kansas City, Mo. (9) S5	4.10
Lackawanna, N.Y. (32) B2	3.50
Los Angeles B3	4.25
Milton, Pa. B6	4.35
Minneapolis, Colo. C10	4.55
New Britain (10) S15	4.00
No. Tonawanda, N.Y. B11	3.50
Pittsburg, Calif. C11	4.25
Riverdale, Ill. A1	3.50
San Francisco S7	4.85
Seattle B3, N14	4.50
Sharon, Pa. S3	4.00
So. Chicago, Ill. W14	3.50
So. San Francisco B3	4.25
SparrowsPoint, Md. B2	3.50
Torrance, Calif. C11	4.25
Warren, O. R2	3.50
Weirton, W. Va. W6	3.60
West Leechburg, Pa. A4	3.75
Youngstown U5, Y1	3.50

STRIP, Hot-Rolled Alloy

Bridgeport, Conn. (10) S15	5.45
Carnegie, Pa. S18	5.85
Fontana, Calif. K1	6.70
Gary, Ind. U5	5.50
Houston, Tex. S5	5.90
Kansas City, Mo. S5	6.10

STRIP, Cold-Finished,

Spring Steel (Annealed)	0.26-0.40C	0.41-0.60C	0.61-0.80C	0.81-1.05C	1.06-1.35C
Berea, O. C7	6.80	7.40	9.35	11.65	11.65
Bridgeport, Conn. (10) S15	5.35	6.80	7.40	9.35	11.65
Bristol, Conn. W1	...	7.70	9.65	11.95	...
Carnegie, Pa. S18	...	6.80	7.40	9.35	11.65
Cleveland A7	4.65	6.45	7.40	9.35	11.65
Dearborn, Mich. D3	5.60	7.05	7.65	...	...
Detroit D2	5.60	6.65	7.25	...	...
Dover, O. G6	5.50	6.80	7.40	9.35	11.65
Franklin Park, Ill. T6	5.00	6.60	7.55	9.50	11.80
Harrison, N.J. C18	...	7.70	9.65	11.95	...
Mattapan, Mass. T6	5.50	6.75	7.70	9.65	11.95
New Britn., Conn. (10) S15	5.35	6.80	7.40	9.35	11.65
New Castle, Pa. B4	5.35	6.80	7.40	9.35	...
New Castle, Pa. E5	5.50	6.80	7.40	9.35	11.65
New Haven, Conn. D2	5.85	6.75	7.35	...	...
New York W3	...	7.10	7.70	9.65	11.95
Pawtucket, R.I. N8:	...	6.80	7.40	9.35	11.65
Cleve. or Pitts. Base	...	6.80	7.40	9.35	11.65
Worcester, Mass. Base	5.85	7.10	7.70	9.65	11.95
Sharon, Pa. S3	5.35	6.80	7.40	9.35	11.65
Trenton, N.J. R5	...	7.10	7.70	9.65	11.95
Wallingford, Conn. W2	5.85	6.75	7.35	9.30	11.60
Weirton, W. Va. W6	5.35	6.80	7.40	9.35	11.65
Worcester, Mass. A7	4.95	6.75	7.70	9.65	11.95
Worcester, Mass. T6	5.50	6.75	7.70	9.65	11.95
Youngstown C8	...	7.10	7.70	9.65	11.95

STRIP, Cold-Rolled Alloy Steel

Bridgeport, Conn. (10) S15	10.75
Carnegie, Pa. S18	10.60
Cleveland A7	10.00
Dover, O. G6	10.50
Fontana, Calif. K1	11.65
Harrison, N.J. C18	10.60
Midland, Pa. C18	10.60
New Britain, Conn. (10) S15	10.75
Pawtucket, R.I. (11) N5	10.75
Pawtucket, R.I. (12) N5	11.05
Sharon, Pa. S3	10.80
Worcester, Mass. A7	10.30
Youngstown C8	10.60

STRIP, Hot-Rolled Ingot Iron

Ashland, Ky. (8) A10	3.75
Warren, O. R2	4.10

STRIP, Cold-Rolled Ingot Iron

Warren, O. R2	5.25
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TIGHT COVERAGE HOOP

Atlanta A11	4.05
Riverdale, Ill. A1	3.90
Sharon, Pa. S3	4.15
Youngstown U5	3.75

WIRE, Tire Bead

Bartonville, Ill. (1) K4	10.90
Monessen, Pa. P16	11.40
Roebing, N.J. R5	11.55

WIRE, Merchant Quality (6 to 8 gage)

An'd. Galv.	
Albama City R2	5.70
Albama City J5	5.70
Albama City A11	5.95
Bartonville (19) K4	5.70
Buffalo W12	4.85
Cleveland A7	5.70
Crawfordsville M8	5.95
Donora, Pa. A7	5.70
Duluth, Minn. A7	5.70
Fairfield T2	5.70
Houston, Tex. S5	6.10
Johnstown B2	5.70
Joliet, Ill. A7	5.70
Kansas City, Mo. S5	6.30
Kokomo C16	5.80
Los Angeles B3	6.65
Minnequa C10	5.95
Monessen P7	5.95
Palmer W12	5.15
Pitts. Calif. C11	6.65
Prtsmth. (18) P12	6.10
Rankin A7	5.70
So. Chicago R2	5.70
So. S. Fran. C10	6.65
Sparrows Pt. B2	5.90
Sterling, Ill. (1) N15	5.70
Struthers, O. Y1	5.70
Torrance, Cal. C11	6.65
Worcester A7	6.00

WIRE, Cold-Rolled Flat

Anderson, Ind. G6	6.20
Buffalo W12	6.35
Cleveland A7	5.85
Crawfordsville, Ind. M8	6.20
Detroit D2	6.20
Dover, O. G6	6.20
Fostoria, O. S1	6.00
Kokomo, Ind. C16	5.70
Franklin Park, Ill. T6	6.20
Massillon, O. R8	5.85
Monessen, Pa. P16	5.85
Monessen, Pa. P7	6.10
New Haven, Conn. D2	6.50
Pawtucket, R.I. (12) N8	6.85
Trenton, N.J. R5	6.15
Worcester, Mass. A7	6.15
Worcester, Mass. T6	6.50
Worcester, Mass. W12	6.65

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

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Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

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Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Pt., Md. B2	8.80
Johnstown, Pa. B2	8.50

WIRE, Manufacturers Bright, Low Carbon

Albama City, Ala. R2	4.85
Albama City, Pa. J5	4.85
Atlanta A11	5.10
Atlanta, Ill. L1	5.05
Bartonville, Ill. (1) K4	4.85
Buffalo W12	4.85
Chicago W13	5.10
Cleveland A7, C20	4.85
Crawfordsville, Ind. M8	5.10
Donora, Pa. A7	4.85
Duluth, Minn. A7	4.85
Fairfield, Ala. T2	4.85
Fostoria, O. (24) S1	5.35
Houston S5	5.25
Johnstown, Pa. B2	4.85
Joliet, Ill. A7	4.85
Kokomo, Ind. C16	5.45
Los Angeles B3	5.80
Minnequa, Colo. C10	5.10
Monessen, Pa. P7	5.10
Newark 6-8 gage I-1	5.50
No. Tonawanda B11	4.85
Palmer, Mass. W12	5.15
Pittsburg, Calif. C11	5.80
Portsmouth, O. P12	5.25
Rankin, Pa. A7	4.85
So. Chicago, Ill. R2	4.85
So. San Francisco C10	5.80
Sparrows Point, Md. B2	4.95
Sterling, Ill. (1) N15	4.85
Struthers, O. Y1	4.85
Torrance, Calif. C11	5.80
Waukegan, Ill. A7	4.85
Worcester, Mass. A7, T6	5.15

WIRE, Manufacturers Bright, Low Carbon

Albama City, Ala. R2	4.85
Albama City, Pa. J5	4.85
Atlanta A11	5.10
Atlanta, Ill. L1	5.05
Bartonville, Ill. (1) K4	4.85
Buffalo W12	4.85
Chicago W13	5.10
Cleveland A7, C20	4.85
Crawfordsville, Ind. M8	5.10
Donora, Pa. A7	4.85
Duluth, Minn. A7	4.85
Fairfield, Ala. T2	4.85
Fostoria, O. (24) S1	5.35
Houston S5	5.25
Johnstown, Pa. B2	4.85
Joliet, Ill. A7	4.85
Kokomo, Ind. C16	5.45
Los Angeles B3	5.80
Minnequa, Colo. C10	5.10
Monessen, Pa. P7	5.10
Newark 6-8 gage I-1	5.50
No. Tonawanda B11	4.85
Palmer, Mass. W12	5.15
Pittsburg, Calif. C11	5.80
Portsmouth, O. P12	5.25
Rankin, Pa. A7	4.85
So. Chicago, Ill. R2	4.85
So. San Francisco C10	5.80
Sparrows Point, Md. B2	4.95
Sterling, Ill. (1) N15	4.85
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Albama City, Ala. R2	4.85
Albama City, Pa. J5	4.85
Atlanta A11	5.10
Atlanta, Ill. L1	5.05
Bartonville, Ill. (1) K4	4.85
Buffalo W12	4.85
Chicago W13	5.10
Cleveland A7, C20	4.85
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Fairfield, Ala. T2	4.85
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Monessen, Pa. P7	5.10
Newark 6-8 gage I-1	5.50
No. Tonawanda B11	4.85
Palmer, Mass. W12	5.15
Pittsburg, Calif. C11	5.80
Portsmouth, O. P12	5.25
Rankin, Pa. A7	4.85
So. Chicago, Ill. R2	4.85
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Sterling, Ill. (1) N15	4.85
Struthers, O. Y1	4.85
Torrance, Calif. C11	5.80
Waukegan, Ill. A7	4.85
Worcester, Mass. A7, T6	5.15

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Albama City, Ala. R2	4.85
Albama City, Pa. J5	4.85
Atlanta A11	5.10
Atlanta, Ill. L1	5.05
Bartonville, Ill. (1) K4	4.85
Buffalo W12	4.85
Chicago W13	5.10
Cleveland A7, C20	4.85
Crawfordsville, Ind. M8	5.10
Donora, Pa. A7	4.85
Duluth, Minn. A7	4.85
Fairfield, Ala. T2	4.85
Fostoria, O. (24) S1	5.35
Houston S5	5.25
Johnstown, Pa. B2	4.85
Joliet, Ill. A7	4.85
Kokomo, Ind. C16	5.45
Los Angeles B3	5.80
Minnequa, Colo. C10	5.10
Monessen, Pa. P7	5.10
Newark 6-8 gage I-1	5.50
No. Tonawanda B11	4.85
Palmer, Mass. W12	5.15
Pittsburg, Calif. C11	5.80
Portsmouth, O. P12	5.25
Rankin, Pa. A7	4.85
So. Chicago, Ill. R2	4.85
So. San Francisco C10	5.80
Sparrows Point, Md. B2	4.95
Sterling, Ill. (1) N15	4.85
Struthers, O. Y1	4.85
Torrance, Calif. C11	5.80
Waukegan, Ill. A7	4.85
Worcester, Mass. A7, T6	5.15

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Atlanta A11	5.10
Atlanta, Ill. L1	5.05
Bartonville, Ill. (1) K4	4.85
Buffalo W12	4.85
Chicago W13	5.10
Cleveland A7, C20	4.85
Crawfordsville, Ind. M8	5.10
Donora, Pa. A7	4.85
Duluth, Minn. A7	4.85
Fairfield, Ala. T2	4.85
Fostoria, O. (24) S1	5.35
Houston S5	5.25
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Joliet, Ill. A7	4.85
Kokomo, Ind. C16	5.45
Los Angeles B3	5.80
Minnequa, Colo. C10	5.10
Monessen, Pa. P7	5.10
Newark 6-8 gage I-1	5.50
No. Tonawanda B11	4.85
Palmer, Mass. W12	5.15
Pittsburg, Calif. C11	5.80
Portsmouth, O. P12	5.25
Rankin, Pa. A7	4.85
So. Chicago, Ill. R2	4.85
So. San Francisco C10	5.80
Sparrows Point, Md. B2	4.95
Sterling, Ill. (1) N15	4.85
Struthers, O. Y1	4.85
Torrance, Calif. C11	5.80
Waukegan, Ill. A7	4.85
Worcester, Mass. A7, T6	5.15

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Bartonville, Ill. (1) K4	4.85
Buffalo W12	4.85
Chicago W13	5.10
Cleveland A7, C20	4.85
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Donora, Pa. A7	4.85
Duluth, Minn. A7	4.85
Fairfield, Ala. T2	4.85
Fostoria, O. (24) S1	5.35
Houston S5	5.25
Johnstown, Pa. B2	4.85
Joliet, Ill. A7	4.85
Kokomo, Ind. C16	5.45
Los Angeles B3	5.80
Minnequa, Colo. C10	5.10
Monessen, Pa. P7	5.10
Newark 6-8 gage I-1	5.50
No. Tonawanda B11	4.85
Palmer, Mass. W12	5.15
Pittsburg, Calif. C11	5.80
Portsmouth, O. P12	5.25
Rankin, Pa. A7	4.85
So. Chicago, Ill. R2	4.85
So. San Francisco C10	5.80
Sparrows Point, Md. B2	4.95
Sterling, Ill. (1) N15	4.85
Struthers, O. Y1	4.85
Torrance, Calif. C11	5.80
Waukegan, Ill. A7	4.85
Worcester, Mass. A7, T6	5.15

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Albama City, Ala. R2	4.85
Albama City, Pa. J5	4.85
Atlanta A11	5.10
Atlanta, Ill. L1	5.05
Bartonville, Ill. (1) K4	4.85
Buffalo W12	4.85
Chicago W13	5.10
Cleveland A7, C20	4.85
Crawfordsville, Ind. M8	5.10
Donora, Pa. A7	4.85
Duluth, Minn. A7	4.85
Fairfield, Ala. T2	4.85
Fostoria, O. (24) S1	5.35
Houston S5	5.25
Johnstown, Pa. B2	4.85
Joliet, Ill. A7	4.85
Kokomo, Ind. C16	5.45
Los Angeles B3	5.80
Minnequa, Colo. C10	5.10
Monessen, Pa. P7	5.10
Newark 6-8 gage I-1	5.50
No. Tonawanda B11	4.85
Palmer, Mass. W12	5.15
Pittsburg, Calif. C11	5.80
Portsmouth, O. P12	5.25
Rankin, Pa. A7	4.85
So. Chicago, Ill. R2	4.85
So. San Francisco C10	5.80
Sparrows Point, Md. B2	4.95
Sterling, Ill. (1) N15	4.85
Struthers, O. Y1	4.85
Torrance, Calif. C11	5.80
Waukegan, Ill. A7	4.85
Worcester, Mass. A7, T6	5.15

Pitts. Cal. C11	10.60	12.50
Prtsmth. (18) P12	10.55	12.30
ParrowsPt. B2.	10.35	12.25
Waukegan A7...	10.25	12.15

P12 Portsmouth Division,
Detroit Steel Corp.

P13 Precision Drawn Steel

P14 Pitts. Screw & Bolt Co.



"...On the feet of Individuals."

Society advances on the feet of individuals. We Americans live under the highest standard ever achieved because we believe in and are permitted currently to practice three of the cardinal principles of progress—Invention, Research and COMPETITION.

Nineteen basic inventions influence our pattern of life today. Each one was created to satisfy a fundamental need for improvement—a modern means of competing as against outmoded procedure. Each one, such as the electric light, the telegraph, the amplifying tube, the induction motor, created a new industry in which numerous companies strove in free competition for the maximum share of business.

For example, since Thomas Edison invented the incandescent filament lamp in 1880, the electric light industry has grown to an annual volume of \$501,500,000 in light bulbs alone; in May, 1906 the Wright Brothers received the patent for their flying machine; the value of aviation manufactures in 1951 in the United States alone was estimated at \$3,350,000,000 and in February, 1952, records show a \$10½ billion backlog of orders.

More rapid still is the growth of the radio-television industry which today produces some \$230 million worth of home radio sets and \$1,570,800,000 in television sets. In every case, employment and sales volume grew enormously and the public enjoyed huge personal benefits.

Side by side with Invention came Research, exemplified by the competition of intelligent men questing for new materials, new methods, new processes, new scientific truths. Current advertisements tell of hundred-year tests to assure bet-

ter materials for the future, technology that produces metals to withstand almost inconceivable heat, machines calculating 20,000 times faster than the mind of man, medicines that cure "incurable" diseases, food processes that cook, sterilize and pack hundreds of cans a minute. And in every case, the public enjoys huge personal benefits.

This is what James A. Decker undoubtedly had in mind when he wrote the line, "Society advances on the feet of individuals." These "individuals" are you and I, all our countrymen, benefiting every day from Invention, Research—and from COMPETITION.

Developing inventions, marketing products, and pursuing scientific research require substantial investments. A grave danger to their future now looms. In 1951, corporation net profits suffered a loss of 21% over the previous year. The reason—taxes too high, government controls and policies that interfere too greatly with private industry. If this continues, financial resources will dwindle, competition will be stifled.

Without free competition, American progress stops. No country can long exist when its government calls all the shots. We need competition to assure progress for people.

★ ★ ★

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THE COMPETITIVE SYSTEM DELIVERS THE MOST TO THE GREATEST NUMBER OF PEOPLE

STANDARD PIPE, T & C

Size Inches	List Per Ft	Pounds Per Ft	Carload Discounts from List, %					
			Black			Galvanized		
			A	B	C	D	E	F
1/8	5.5c	0.24	34.0	32.0	...	+0.5	+2.5	...
1/4	6.0	0.42	28.5	26.5	...	+3.5	+5.5	...
3/8	6.0	0.57	23.5	21.5	...	+10.0	+12.0	...
1/2	8.5	0.85	36.0	34.0	35.0	12.0	10.0	11.0
3/4	11.5	1.18	39.0	37.0	38.0	16.0	14.0	15.0
1	17.0	1.68	41.5	39.5	40.5	19.5	17.5	18.5
1 1/4	23.0	2.28	42.0	40.0	41.0	20.5	18.5	19.5
1 1/2	27.5	2.78	42.5	40.5	41.5	21.5	19.5	20.5
2	37	3.68	43.0	41.0	42.0	22.0	20.0	21.0
2 1/2	58.5	5.82	43.5	41.5	42.5	23.0	21.0	22.0
3	76.5	7.62	43.5	41.5	42.5	23.0	21.0	22.0

Column A: Etna, Pa. N2 and 36 1/4% on 3 1/2", 4"; Butler, Pa. 1/8"-F6; Benwood, W. Va., 3 1/2 points lower on 1/8", 1 1/2 points lower on 1/4", and 2 points lower on 3/8", W10; Sharon, Pa. M6, 1 point higher on 1/8", 2 points lower on 1/4" and 3/8"; Wheatland, Pa. W9, 2 points lower on 1/8", 1/4", 3/8". Following make 1/8" and larger: Lorain, O. N3; Youngstown R2 and 36 1/4% on 3 1/2" and 4"; Youngstown Y1; Aliquippa, Pa. J5; Fontana, Calif. K1 quotes 1 1/2 points lower on 1/8" and larger continuous weld and 24% on 3 1/2" and 4".

Columns B & E: Sparrows Point, Md. B2. Columns C & F: Indiana Harbor, Ind., Y1; Alton, Ill., (Gary base) 2 points lower discount LL. Column D: Butler, Pa. F6, 1/8"-F6; Benwood, W. Va. W10, except plus 4% on 1/8", plus 6% on 1/4", plus 13% on 3/8" and 15.5% on 1/2", 3/4", 1 1/2 points lower on 1" and 1 1/4", 1 point lower on 1 1/2", 2", 2 1/2" and 3"; Wheatland, Pa. W9, add 2 points on 1/8", 1/4", 3/8", 1 point lower on 1/2", 2 points lower on 1", 1 1/2", 2", 1 1/2 points lower on 1 1/4", 2 1/4", 3". Etna, Pa. N2 and 15.5% on 3 1/2", 4". Following quote only on 1/8" and larger: Lorain, O. N3; Youngstown R2, and 15 1/2% on 3 1/2" and 4"; Youngstown Y1, Aliquippa, Pa. J5 quotes 1 point lower on 3/8", 2 points lower on 1", 1 1/2", 2", 1 1/2 points lower on 1 1/4", 2 1/4" and 3".

Size Inches	List Per Ft	Pounds Per Ft	Carload Discounts from List, %			
			Seamless		Elec. Weld	
			A	B	C	D
2	37.0c	3.68	29.5	8.0	29.5	8.0
2 1/2	58.5	5.82	32.5	11.5	32.5	11.5
3	76.5	7.62	32.5	11.5	32.5	11.5
3 1/2	92.0	9.20	34.5	13.5	34.5	13.5
4	\$1.09	10.89	34.5	13.5	34.5	13.5
5	1.48	14.81	37.0	16.0	37.0	16.0
6	1.92	19.18	37.0	16.0	37.0	16.0

Column A: Aliquippa J5; Ambridge N2; Lorain N3; Youngstown Y1.

Column B: Aliquippa J5 quotes 1 1/2 pts lower on 2", 1 pt lower on 2 1/2-6-in.; Lorain N3; Youngstown Y1.

Columns C & D: Youngstown R2.

BOILER TUBES

Net base c.l. prices, dollars per 100 ft., mill; minimum wall thickness, cut lengths 10 to 24 ft. inclusive.

O.D. In.	B.W. Ga.	Seamless		Elec. Weld	
		H.R.	C.D.	H.R.	C.D.
1	13	13.45	16.47	15.36	15.36
1 1/4	13	16.09	19.71	15.61	18.19
1 1/2	13	17.27	21.15	17.25	20.30
1 3/4	13	19.29	23.62	19.62	23.09
2	13	21.62	26.48	21.99	25.86
2 1/4	13	24.35	29.82	24.50	28.84
2 1/2	12	26.92	32.97	26.98	31.76
2 3/4	12	29.65	36.32	29.57	34.76
3	12	32.11	39.33	31.33	36.84
3 1/2	12	34.00	41.64	32.89	38.70

CLAD STEELS

(Cents per pound)

Cladding	Plates		Strip		Sheets		Cu Base
	Carbon	Stainless	Carbon	Stainless	Carbon	Stainless	
302	10%	20%	10%	20%	10%	20%	77.00
304	25.00	29.50	...	...	24.50	27.50	77.00
309	30.50	35.00	...	...	...	...	144.00
310	36.50	41.00	...	...	...	...	...
316	29.50	34.00	...	...	26.00	35.92	...
317	34.50	39.00	...	...	...	...	...
318	33.50	38.00	...	...	...	...	...
321	26.50	31.00	...	...	23.00	33.00	111.00
347	27.50	32.00	...	...	24.00	33.50	130.00
405	21.25	27.75	...	...	...	...	...
410	20.75	27.25	...	...	...	...	...
Nickel	33.55	45.15	41.00	54.00	...	...	...
Inconel	41.23	54.18	...	...	...	...	165.00
Monel	34.93	46.28	...	...	...	...	...
Copper*	...	...	23.70†	29.65†	...	...	...

* Deoxidized. † 20.20c for hot-rolled, † 26.40c for hot-rolled. Production points for carbon base products: Stainless plates, sheet, Conshohocken, Pa. A3 and New Castle, Ind. I-4; stainless-clad plates, Claymont, Del. C22, Coatesville, Pa. L7 and Washington, Pa. J3; nickel, inconel, monel-clad plates, Coatesville L7; nickel, copper-clad strip, Carnegie, Pa., S18. Production point for copper-base sheets is Carnegie, Pa. A13.

BOLTS, NUTS

CARRIAGE, MACHINE BOLTS
(F.o.b. midwestern plants; per cent off list for less than case lots to consumers)

6 in. and shorter:
1/2-in. & smaller diam. 15
3/4-in. & 1/2-in. 18.5
1-in. and larger 17.5

Longer than 6 in.:
All diams. 14
Lag bolts, all diams.:
6 in. and shorter 23
over 6 in. long 21

Ribbed Necked Carriage 18.5
Blank 34
Plow 34
Step, Elevator, Tap and Sleigh Shoe 21
Tire bolts 21
Boiler & Fitting-Up Bolts 31

NUTS
Reg. Hvy.
Square:
1/2-in. & smaller 15
3/4-in. & 1/2-in. 12
1-in. & 1 1/2-in. 9
1 1/2-in. & larger 7.5

H.P. Hex.:
1/2-in. & smaller 26
3/4-in. & 1/2-in. 16.5
1-in. & 1 1/2-in. 12
1 1/2-in. & larger 8.5

C. P. Hex.:
1/2-in. & smaller 26
3/4-in. & 1/2-in. 23
1-in. & 1 1/2-in. 19.5
1 1/2-in. & larger 12

SEMI-FINISHED NUTS
American Standard
(Per cent off list for less than case or keg quantities)

Reg. Hvy.
1/2-in. & smaller 35
3/4-in. & 1/2-in. 29.5
1-in. & 1 1/2-in. 24
1 1/2-in. & larger 13

Light
1-in. & smaller 35
1 1/2-in. to 1-in. 28.5
3/4-in. to 1 1/2-in. 26

STEEL STOVE BOLTS
(F.o.b. plant, per cent off list in packages)

Plain finish 48 & 10
Plated finishes 31 & 10

HEXAGON CAP SCREWS
(1020 steel; packaged: per cent off list)

6 in. or shorter:
1/2-in. & smaller 42
3/4-in. through 1 in. 34
Longer than 6 in.:
1/2-in. & smaller 26
3/4-in. through 1 in. 4

SQUARE HEAD SET SCREWS
(Packaged; per cent off list)

1 in. diam x 6 in. and shorter 38
1 in. and smaller diam. x over 6 in. 26

HEADLESS SET SCREWS
(Packaged; per cent off list)

No. 10 and smaller 35
1/4-in. diam. & larger 16
N.F. thread, all diams. 10

RIVETS

F.o.b. midwestern plants
Structural 1/2-in. larger 7.85c
1/2-in. under 36 off

WASHERS, WROUGHT

F.o.b. shipping point, to jobbers—List to list-plus-\$1

FLUORSPAR

Metallurgical grade, f.o.b. shipping point, in Ill., Ky., net tons, carloads, effective CaF₂ content 70%, \$43; 60%, \$40.
Imported, net ton, duty paid, metallurgical grade, \$33-\$35.

ELECTRODES

(Threaded, with nipples, unboxed f.o.b. plant)

GRAPHITE

Diam.	Length	Cents per lb
17, 18, 20	60, 72	17.85
8 to 16	48, 60, 72	17.85
7	48, 60	19.57
6	48, 60	20.95

CARBON

35, 40	110	8.03
30	65, 84, 110	8.03
24	72 to 104	8.03
17 to 20	34, 90	8.03

STAINLESS STEEL

Bars Wire
Structurals

(Per pound, f.o.b. shipping point in ton lots for minus 100 mesh, except as otherwise noted.)

Sponge iron: Cents
98+ % Fe, annealed. 18.00
Unannealed. 14.50
Swedish, c.i.f. New York, in bags. 8.85-9.95

Electrolytic iron: 42.50
Annealed, 99.5% Fe. 42.50
Unannealed (99+ % Fe). 36.50
Unannealed, 99+ % Fe (minus 325 mesh). 53.50
Powder Flakes. 48.50

Carbonyl Iron: 97.9-99.8% size 5 to 10 microns. 83.00-148.00

Aluminum: Carlots, freight allowed. 29.50
Atomized, 500 lb drums, freight allowed. 32.50
Antimony, 500 lb lots. 71.00
Brass, 20-ton lots. 28.25-32.00
Bronze, 10-ton lots. 51.25-60.00
Phosphor-Copper, 20-ton lots. 50.00
Copper: Electrolytic. 37.25
Reduced. 34.75
Lead. 22.50
Magnesium. 75.00-85.00
Manganese: Minus 100 mesh. 57.00
Minus 35 mesh. 52.00
Minus 200 mesh. 62.00
Nickel unannealed. 86.00
Nickel-Silver 5-ton lots. 44.50
Silicon. 38.50
Solder (plus cost of metal). 8.50
Stainless Steel, 302. 83.00
Zinc, 10-ton lots. 20.00-28.00
Tungsten. Dollars
Melting grade, 99% 60 to 200 mesh: 1000 lb and over. 5.85
Less than 1000 lb. 6.00
Molybdenum: 99.9%, minus 200 mesh. 3.24
Chromium, electrolytic 99% Cr min. 3.50

Balt., Types 301-347 sheet, except 303 and 309 E2.
Brackenridge, Pa., sheets A4 quotes slight variations on Types 301-347.
Bridgeville, Pa., bars, wire, sheets & strip U4.
Butler, Pa., sheets and strip except Types 303, 309, 416, 420, 501 & 502, A10.
Carnegie, Pa., sheets and strip except Types 303, 416, 501 & 502 S18.
Cleveland, strip A7.
Detroit, strip M1 quotes 34.00c on Type 301; 36.50c; 302; 38.50c; 304; 58.50c; 316; 52.00c; 347; 30.50c; 410; 31.00c; 430.
Dunkirk, N. Y., bars, wire A4 quotes slight variations on Types 301-347.
Duquesne, Pa., bars U5.
Fort Wayne, Ind., bars and wire, except Types 501 & 502 J6 quotes slight variations on Types 301-347.
Gary, Ind., sheets except Type 416 U5.
Harrison, N. J., strip and wire C18.
Massillon, O., all items, R2.
McKeesport, Pa., strip, Type 410; bars & wire, Types 410 through 430 and 31.25c on Type 302, 33.75c on 303, 32.75c on 304, 48.75c on 316, 36.75c on 321, 41.25c on 347 F2.
McKeesport, Pa., bars, sheets except Type 416 U5.
Middletown, O., sheets and strip except Types 303, 416, 420, 501 and 502 A10.
Midland, sheets & strip C18.
Munhall, Pa., bars U5.
Muncie, Ind., wire I-7 quotes types 302, 304, 430.
Pittsburgh, sheets C18.
Reading, Pa., strip except 34.25c on Type 301 and 56.00c on 309; bars, except 31.50c on Type 301 and 45.25c on 309 C4.
Sharon, Pa., strip, except Types 303, 309, 416, 501, 502 and 34.25c on Type 301 S3.

So. Chicago, Ill., bars & structurals U5.
Syracuse, N. Y., bars, wire & structurals C18.
Titusville, Pa., bars U4.
Wallingford, Conn., strip W2 quotes 0.25c higher.
Washington, Pa., bars, sheets & strip, except 0.25c higher on Type 301 J3.
Washington, Pa., Types 301 through 347 sheets & strip except 303, 309; 316 sheets 62.00c, strip 64.00c W4.
Watervliet, N. Y., structurals & bars A4 quotes variations on Types 301-347.
Waukegan, bars & wire A7.
West Leechburg, Pa., strip, A4 quotes slight variations on Types 301-347.
Youngstown, strip except Types 303, 309, 316, 416, 501 and 502 and 34.25c on Type 301 C8.

COAL CHEMICALS

Per ton bulkovens
Sulphate of ammonia. \$32-\$45
Cents per pound,ovens
Phenol. 40 (carlots, non-returnable drums) 17.25

METAL POWDERS

(Per pound, f.o.b. shipping point in ton lots for minus 100 mesh, except as otherwise noted.)

Sponge iron: Cents
98+ % Fe, annealed. 18.00
Unannealed. 14.50
Swedish, c.i.f. New York, in bags. 8.85-9.95

Electrolytic iron: 42.50
Annealed, 99.5% Fe. 42.50
Unannealed (99+ % Fe). 36.50
Unannealed, 99+ % Fe (minus 325 mesh). 53.50
Powder Flakes. 48.50

Carbonyl Iron: 97.9-99.8% size 5 to 10 microns. 83.00-148.00

Aluminum: Carlots, freight allowed. 29.50
Atomized, 500 lb drums, freight allowed. 32.50
Antimony, 500 lb lots. 71.00
Brass, 20-ton lots. 28.25-32.00
Bronze, 10-ton lots. 51.25-60.00
Phosphor-Copper, 20-ton lots. 50.00
Copper: Electrolytic. 37.25
Reduced. 34.75
Lead. 22.50
Magnesium. 75.00-85.00
Manganese: Minus 100 mesh. 57.00
Minus 35 mesh. 52.00
Minus 200 mesh. 62.00
Nickel unannealed. 86.00
Nickel-Silver 5-ton lots. 44.50
Silicon. 38.50
Solder (plus cost of metal). 8.50
Stainless Steel, 302. 83.00
Zinc, 10-ton lots. 20.00-28.00
Tungsten. Dollars
Melting grade, 99% 60 to 200 mesh: 1000 lb and over. 5.85
Less than 1000 lb. 6.00
Molybdenum: 99.9%, minus 200 mesh. 3.24
Chromium, electrolytic 99% Cr min. 3.50

METALLURGICAL COKE

Price net ton

BEEHIVE OVENS

Connellsville, Pa. \$14.50-15.00
Connellsville, Pa. \$16.50-17.50
New River foundry. 20.80
Wise county, foundry. 15.95
Wise county, furnace. 15.20

OVEN FOUNDRY COKE

Kearney, N. J. ovens. \$22.75
Everett, Mass., ovens
New England, del. \$24.80
Chicago ovens. 23.00
Chicago, del. 24.50
Terre Haute, ovens. 22.50
Milwaukee, ovens. 23.75
Indianapolis, ovens. 22.75
Chicago, del. 26.62
Cincinnati, del. 25.85
Detroit, del. 27.05
Ironton, O., ovens. 22.50
Cincinnati, del. 25.12
Painesville, O., ovens. 24.00
Cleveland, del. 25.82
Erie, Pa., ovens. 23.50
Birmingham, ovens. 20.30
Cincinnati, del. 25.23
Philadelphia, ovens. 22.70
Neville Island, Pa., ovens. 23.00
Swedeland, Pa., ovens. 22.60
St. Louis, ovens
St. Louis, del. 25.40
Portsmouth, O., ovens. 22.50
Cincinnati, del. 25.12
Detroit, ovens. 24.00
Detroit, del. 25.00
Buffalo, del. 26.58
Flint, del. 26.73
Pontiac, del. 25.56
Saginaw, del. 27.08
*Or within \$4.55 freight zone from works.



This is the way to pick up steel!

If it's **tool**, **alloy**, or **stainless** steel you're after, this is the way to get it: Pick up your phone and call your nearest Carpenter MILL-BRANCH WAREHOUSE or Distributor.

In a minute you're a *part* of Carpenter's direct-from-Mill WAREHOUSE set-up. And that makes a big difference to you. It means a wider choice of sizes and grades because all stocks in your Carpenter Warehouses are backed by the production flexibility of the specialty Mill in Reading. Every time you call you benefit from not only one warehouse but a *pool* of MILL-BRANCH WAREHOUSES—backed by all the know-how and facilities of the Reading Mill.

It means more complete service... more helpful and more authoritative information whenever you request it. Think how this *first-hand* source of service can assist you in smoothing-out tooling and production kinks!

It's almost like having a specialty steel Mill *right next door!*

Steel, information on prices, sizes and grades, engineering data, personal "in-your-shop" assistance—here's what you want in steel service! To get it, just pick up your phone and call your nearest Carpenter MILL-BRANCH WAREHOUSE or Distributor. The Carpenter Steel Co., 139 W. Bern St., Reading, Pa.

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for Mill-Branch Warehouse Service



SPECIALTY TOOL • ALLOY • AND • STAINLESS STEELS

WAREHOUSE STEEL PRODUCTS

(Representative prices, cents per pound, for delivery within switching limits, subject to extras.)

	SHEETS			STRIP		BARS		Standard Structural Shapes	PLATES	
	H.R. 18 Ga., Heavier*	C.R.	Gal. 10 Ga.†	H.R.*	C.R.*	H.R. Rds.	C.F. Rds.		Carbon	Floor
New York (city)	6.28	7.24	8.37	6.50	...	6.52	7.33	9.29‡	6.74	8.01
Jersey City (c'try)	6.09	6.94	8.12	6.36	...	6.22	7.03	8.99‡	6.68	7.71
Boston (city)	6.45	7.23	8.44	6.40	...	6.30	6.82‡	10.30‡	6.45	7.89
Boston (c'try)	6.25	7.03	8.24	6.20	...	6.10	6.61‡	10.60‡	6.25	7.69
Phila. (city)	6.09	7.05	8.20	6.29	7.29	6.35	7.19	10.50‡	6.11	7.33
Phila. (c'try)	5.84	6.80	7.95	6.04	6.94	6.10	6.94	10.25‡	5.86	7.08
Balt. (city)	5.74	7.04	8.27	6.27	...	6.25	6.87‡	...	6.37	7.61
Balt. (c'try)	5.54	6.84	8.07	6.07	...	6.05	6.67‡	...	6.17	7.41
Norfolk, Va.	6.78	...	...	...	...	6.04	7.30	...	6.30	7.15
Richmond, Va.	5.74	6.57	8.38	6.14	...	5.91	6.59	...	6.72	8.00
Wash. (w'hse)	6.05	7.26	8.49	6.50	...	6.50	7.26	...	6.60	7.86
Buffalo (del.)	5.74	6.52	8.26	6.06	...	5.72	6.65‡	10.72	6.02	7.55
Buffalo (w'hse)	5.54	6.32	8.06	5.86	...	5.52	6.45‡	10.52	5.82	7.35
Pitts. (w'hse)	5.54	6.32	7.70	5.59	6.90	5.47	6.15	10.10	5.65	6.89
Detroit (w'hse)	5.74	6.49	7.96	5.78	7.15	5.76	6.60	10.37	6.12	7.23
Cleveland (del.)	5.74	6.52	7.99	5.85	7.14	5.81	6.35‡	10.41	6.15	7.39
Cleve. (w'hse)	5.54	6.32	7.79	5.65	6.94	5.61	6.15‡	10.21	5.95	7.19
Cincin. (w'hse)	5.87	6.39	8.12	5.79	...	5.77	6.66	10.52	6.12	7.31
Chicago (city)	5.74	6.52	7.85	5.69	...	5.67	6.25‡	10.30	5.85	7.09
Chicago (w'hse)	5.54	6.32	7.65	5.49	...	5.47	6.05‡	10.10	5.65	6.89
Milwau. (city)	5.90	6.68	8.02	5.85	...	5.83	6.51‡	10.37	6.01	7.25
Milwau. (c'try)	5.70	6.48	7.82	5.65	...	5.63	6.31‡	10.17	5.81	7.05
St. Louis (del.)	6.04	6.80	8.15	5.99	...	5.97	6.65‡	10.60	6.25	7.49
St. L. (w'hse)	5.84	6.60	7.95	5.79	...	5.77	6.45‡	10.40	6.05	7.29
Kans. City (city)	6.40	7.20	8.40	6.35	...	6.35	7.20	...	6.50	7.80
Kans. City (w'hse)	6.20	7.00	8.20	6.15	...	6.15	7.00	...	6.30	7.60
Birm'ham (city)	5.75	6.55	6.90‡	5.70	...	5.70	7.53	...	5.85	8.23
Birm'ham (w'hse)	5.60	6.40	6.75‡	5.55	...	5.55	7.53	...	5.70	8.23
Los Ang. (city)	6.50	8.30‡	9.45	6.60	10.65	6.45	8.05	11.50	6.50	8.75
L. A. (w'hse)	6.30	8.10‡	9.30	6.40	10.45	6.25	7.85	11.30	6.30	8.55
Seattle-Tacoma	7.16	9.18	9.45	7.75	...	7.08	9.11	10.35‡	6.52	8.73
San Fran. (w'hse)	6.64	7.88‡	9.10‡	6.42	...	6.32	8.20	11.30‡	6.30	8.50

* Prices do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gage extra excluded); ‡ add 25-cent special bar quality extra; § as rolled; ¶ as annealed. Base quantities, 2000 to 9999 lb except as noted. Cold-rolled strip, 2000 lb and over; cold-finished bars, 2000 lb and over; 1—500 to 1499 lb; 2—450 to 1499 lb, 3—1000 to 1999 lb.

Ores

Lake Superior Iron Ore

(1952 prices not established; 1951 contract prices follow.)

Gross ton, 5½% (natural), lower lake ports.
After adjustment for analysis, prices will be increased or decreased as the case may be for increases or decreases after Dec. 2, 1950, in applicable lake vessel rates, upper lake rail, freights, dock handling charges and taxes thereon.

Old range bessemer	\$8.70
Old range nonbessemer	8.55
Mesabi bessemer	8.45
Mesabi nonbessemer	8.30
High phosphorus	8.30

Eastern Local Ore

Cents per unit del., E. Pa.

Foundry and basic 56-62% concentrates contract	17.00
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Foreign Ore

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 60 to 68%:	
Spot	nom.
Long-term contract	20.00-24.00
North African hematites (spot)	26.00-28.00
Brazilian iron ore, 68-69% (spot)	30.00-31.00

Tungsten Ore

Net ton unit, duty paid

Foreign wolframite and scheelite, per net ton unit	\$65.00
Domestic scheelite, mines	65.00

Manganese Ore

Manganese, 48% nearby, \$1.18-1.22 per long ton unit, c.i.f. U. S. ports, duty for buyer's account; shipments against old contracts for 48% ore are being received from some sources at 85c-87c.

Chrome Ore

Gross ton, f.o.b. cars, New York, Philadelphia, Baltimore, Charleston S. C., plus ocean freight differential for delivery to Portland, Oreg., or Tacoma, Wash.

Indian and African

48% 2.8:1	\$39.00-42.00
48% 3:1	44.00-45.00
48% no ratio	30.00-32.00

South African Transvaal

44% no ratio	\$27.00-28.00
48% no ratio	34.00-35.00

Brazilian

44% 25:1 lump	nom.
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Rhodesian

45% no ratio	\$29.00
48% no ratio	31.50-32.00
48% 3:1 lump	30.00-51.00

Domestic—rail nearest seller

48% 3:1	\$39.00
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Molybdenum

Sulphide concentrates per lb, molybdenum content, mines	\$1.00
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MANGANESE ALLOYS

Spiegeleisen: (19-21% Mn, 1-3% Si). Carlot per gross ton, \$75, Palmerton, Pa.; \$75, Pittsburgh and Chicago; (16% to 19% Mn) \$1 per ton lower.

Standard Ferromanganese: (Mn 78-82%, C 7% approx.) Carload, lump, bulk \$185 per gross ton of alloy, c.l. packed, \$197; gross ton lots, packed, \$212; less gross ton lots, packed \$229; f.o.b. Alloy, W. Va., Niagara Falls, N. Y., or Ashtabula, O. Base price: \$187, Johnstown, Pa.; \$185, Sheridan, Pa.; \$188, Etna, Pa.; \$186, Anaconda, Mont.

Shipment from Pacific Coast warehouses by one seller, add \$33 to above prices f.o.b. Los Angeles, Oakland, Portland, Oreg. Shipment from Chicago warehouse, ton lots \$227; less gross ton lots, \$244, f.o.b. Chicago. Add or subtract \$2.30 for each 1% or fraction thereof, of contained manganese over 82% and under 78%, respectively.

Low-Carbon Ferromanganese, Regular Grade: (Mn 85-90%). Carload, lump, bulk, max. 0.07% C, 25.75c per lb of contained Mn, carload packed 26.5c, ton lots 27.6c, less ton 28.8c. Delivered. Deduct 0.5c for max. 0.15% C grade from above prices, 1c for max. 0.30% C, 1.5c for max 0.50% C, and 4.5c for max 75% C—max 7% Si. Special Grade: (Mn 90% min, C 0.07% max, P 0.06% max). Add 0.5c to above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.5% max). Carload, lump, bulk 19.15c per lb of contained Mn, carload packed 19.9c, ton lot 21.0c, less ton 22.2c. Delivered. Spot, add 0.25c.

Manganese metal, 2" x D (Mn 96% min, Fe 2% max, Si 1% max, C 0.2% max): Carload, lump, bulk, 34c per lb of metal; packed, 34.75c; ton lot 36.25c; less ton lots 38.25c. Delivered. Spot, add 2c.

Manganese, Electrolytic: 40,000 lb or more, 28c; 2000 to 39,999 lb, 30c; 250 to 1999 lb, 32c. Premium for hydrogen-removed metal, 1.5c per pound, f.o.b. cars Knoxville, Tenn. Freight allowed to St. Louis or to any point east of Mississippi.

Silicomanganese: (Mn 65-68%). Contract, lump, bulk, 1.50% C grade, 18-20% Si 9.90c per lb of alloy, carload packed, 10.65c, ton lots 11.55c, less ton 12.55c. Freight allowed. For 2% C grade, Si 15-17%, deduct 0.2c from above prices. For 3% C grade, Si 12-14.5%, deduct 0.5c from above prices. Spot, add 0.25c.

TITANIUM ALLOYS

Ferrotitanium, Low-Carbon: (Ti 20-25%, Al 3.5% max, Si 4% max, C 0.10% max). Contract, ton lot 2" x D, \$1.50 per lb of contained Ti; less ton \$1.55. (Ti 38-43%, Al 8% max, Si 4% max, C 0.10% max). Ton lots \$1.35, less ton \$1.37, f.o.b. Niagara Falls,

N. Y., freight allowed to St. Louis. Spot, Add 5c.

Ferrotitanium, High-Carbon: (Ti 15-18%, C 6-8%). Contract \$177 per net ton, f.o.b. Niagara Falls, N. Y., freight allowed to destinations east of Mississippi river and north of Baltimore and St. Louis.

Ferrotitanium, Medium-Carbon: (Ti 17-21%, C 2-4.5%) Contract, \$195 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

OTHER FERROALLOYS

Ferrocolumbium: (Cb 56-60%, Si 8% max., C 0.4% max). Contract, ton lot, 2" x D, \$4.90 per lb of contained Cb, less ton \$4.95. Delivered. Spot, add 10c.

Ferrotantalum—Columbium: (Cb 40% approx., Ta 20% approx, and Cb and Ta 60% min, C 0.30% max) ton lots, 2" x D, \$3.75 per lb of contained Cb plus Ta, deld.; less ton lots \$3.80.

Silicaz Alloy: (Si 35-40%, Ca 9-11%, Al 6-8%, Zr 3-5%, Ti 9-11%, B 0.55-0.75%). Carload packed, 1" x D, 45c per lb of alloy, ton lot 47c, less ton lot 49c. Delivered.

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx). Contract, carload, packed, ½" x 12 M, 17.5c per lb of alloy, ton lots 18.25c, less ton 19.5c. Deld. Spot, add 0.25c.

Graphitox No. 4: (Si 48-52%, Ca 5-7%, Ti 9-11%). C.l. packed, 18c per lb of alloy; ton lots 19c; less ton lots 20.50c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%). C.l. packed, 15c per lb of alloy; ton lots 16.50c; less ton lots 17.75c, f.o.b., Niagara Falls; freight allowed to St. Louis.

Simanal: (Approx 20% each Si, Mn, Al; bal. Fe) Lump, carload bulk 14.50c, packed 15.50c; ton lots, packed, 15.75c; less ton lots, packed, 16.25c per lb of alloy, delivered to destination within United States.

Ferrophosphorus: (23-25% based on 24% P content with unitage of \$3 for each 1% of P above or below the base); carloads, f.o.b. sellers' works, Mt. Pleasant, Siglo, Tenn., \$65 per gross ton.

Ferromolybdenum: (55-75%). Per lb, contained Mo f.o.b. Langeloth, \$1.32 in all sizes except powdered which is \$1.41; Washington, Pa., furnace, any quantity \$1.32.

Technical Molybde-Oxide: Per lb, contained Mo, f.o.b. Langeloth, Pa., \$1.14, in cans; in bags, \$1.13, f.o.b. Langeloth, Pa.; Washington, Pa., \$1.13.

NOTE: Current prices on chromium, silicon, vanadium, boron and tungsten alloys appeared on page 161, July 21 issue; calcium zirconium and briquetted alloys, page 161, July 14, Refractories prices also were published on page 161, July 14 issue.

CEILING PRICES, IRON AND STEEL SCRAP

Prices as set forth in Office of Price Stabilization ceiling price regulation No. 5, as amended Feb. 5, 1952.

STEELMAKING SCRAP
COMPOSITE

July 24	\$42.67
July 17	42.50
June, 1952	42.63
July, 1951	44.00
July, 1947	37.23

Based on No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania.

Basing point ceiling prices per gross ton from which maximum shipping prices are computed on scrap of dealer and industrial origin; and from which ceiling on-line and ceiling delivered prices are computed on scrap of railroad origin.

Grade 1	No. 1 Bundles Dealer, Industrial	No. 1 Heavy Melt Railroad
Basing Point		
Alabama City, Ala.	\$39.00	\$41.00
Ashland, Ky.	42.00	44.00
Atlanta, Ga.	39.00	41.00
Bethlehem, Pa.	42.00	44.00
Birmingham, Ala.	39.00	41.00
Brackensridge, Pa.	44.00	46.00
Buffalo, N. Y.	43.00	45.00
Butler, Pa.	44.00	46.00
Canton, O.	44.00	46.00
Chicago, Ill.	42.50	44.50
Cincinnati, O.	43.00	45.00
Claymont, Del.	42.50	44.50
Cleveland, O.	43.00	45.00
Coatesville, Pa.	42.50	44.50
Conshohocken, Pa.	42.50	44.50
Detroit, Mich.	41.15	43.15
Duluth, Minn.	40.00	42.00
Harrisburg, Pa.	42.50	44.50
Houston, Tex.	37.00	39.00
Johnstown, Pa.	44.00	46.00
Kansas City, Mo.	39.50	41.50
Kokomo, Ind.	42.00	44.00
Los Angeles	35.00	37.00
Middletown, O.	43.00	45.00
Midland, Pa.	44.00	46.00
Minnequa, Colo.	38.00	40.00
Monessen, Pa.	44.00	46.00
Phoenixville, Pa.	42.50	44.50
Pittsburg, Calif.	35.00	37.00
Pittsburgh, Pa.	44.00	46.00
Portland, Oreg.	35.00	37.00
Portsmouth, O.	42.00	44.00
St. Louis, Mo.	41.00	43.00
San Francisco	35.00	37.00
Seattle, Wash.	35.00	37.00
Sharon, Pa.	44.00	46.00
Sparrows Pt., Md.	42.00	44.00
Steubenville, O.	44.00	46.00
Warren, O.	44.00	46.00
Weirton, W. Va.	44.00	46.00
Youngstown, O.	44.00	46.00

Differentials from Base

Differentials per gross ton for other grades of dealer and industrial scrap:

O-H and Blast Furnace Grades

2. No. 1 Busheling	Base
3. No. 1 Heavy Melting	— \$1.00
4. No. 2 Heavy Melting	— 1.00
5. No. 2 Bundles	— 1.00
6. Machine Shop Turnings	— 10.00
7. Mixed Borings and Short Turnings	— 6.00
8. Shoveling Turnings	— 6.00
9. No. 2 Busheling	— 4.00
10. Cast Iron Borings	— 6.00

Elec. Furnace and Fdry. Grades

11. Billet, Bloom & Forge Crops	+ 7.50
12. Bar Crops & Plate	+ 5.00
13. Cast Steel	+ 5.00
14. Punchings & Plate Scrap	+ 2.50
15. Electric Furnace Bundles	+ 2.00

Cut Structural & Plate:

16. 3 feet and under	+ 3.00
17. 2 feet and under	+ 5.00
18. 1 foot and under	+ 6.00
19. Bricketted Cast Iron Borings	Base

Foundry, Steel:

20. 2 feet and under	Base
21. 1 foot and under	+ 2.00

22. Springs and Crankshafts	+ 1.00
23. Alloy Free Turnings	— 3.00
24. Heavy Turnings	— 1.00
25. Bricketted Turnings	Base
26. No. 1 Chemical Borings	— 3.00
27. No. 2 Chemical Borings	— 4.00
28. Wrought Iron	+ 10.00
29. Shafting	+ 10.00
31. Old Tin & Terne Plated Bundles	— 10.00

Unprepared Grades

When compressed constitutes:

32. No. 1 Bundles	— 6.00
33. No. 2 Bundles	— 9.00
34. Other than material suitable for hydraulic compression	— 8.00

Restrictions on Use

(1) Prices for Grades 11 and 23 may be charged only when shipped to a consumer directly from an industrial producer; otherwise ceiling prices shall not exceed prices established for Grades 12 and 8, respectively.

(2) Prices established for Grades 26 and 27 may be charged only when sold for use for chemical or annealing purposes, and in the case of Grade 27, for bricketting and direct charge into an electric furnace; otherwise ceiling prices shall not exceed price established for Grade 10.

(3) Prices established for Grade 28 may be charged only when sold to a producer of wrought iron; otherwise ceiling price shall not exceed ceiling price for corresponding grade of basic open-hearth.

(4) Premiums for Grades 11-18, 20 and 21 may be charged only when sold for use in electric and acid open-hearth furnaces or foundries; or in basic O-H or blast furnace under NPA allocation or OPS authorization.

(5) Prices for Grade 29 may be charged only when sold for forging or rerolling purpose.

Differentials from Base

Differentials per gross ton above or below the price of Grade 1 (No. 1 railroad heavy melting steel) for other grades of railroad steel scrap:

2. No. 2 Heavy Melting Steel	— \$2.00
3. No. 2 Steel Wheel	Base
4. Hollow Bored Axes and loco. axles with keyways between the wheelseats.	Base
5. No. 1 Busheling	— 3.50
6. No. 1 Turnings	— 3.00
7. No. 2 Turnings, Drillings & Borings	— 12.00
8. No. 2 Cast Steel and uncut wheelcenters	— 6.00
9. Uncut Frogs, Switches.	Base
10. Flues, Tubes & Pipes	— 8.00
11. Structural, Wrought Iron and/or steel, uncut	— 6.00
12. Destroyed Steel Cars	— 8.00
13. No. 1 Sheet Scrap	— 9.50
14. Scrap Rails, Random Lengths	+ 2.00
15. Rerolling Rails	+ 7.00
Cut Rails:	
16. 3 feet and under	+ 5.00
17. 2 feet and under	+ 6.00
18. 18 inches and under	+ 8.00
19. Cast Steel, No. 1	+ 3.00
20. Uncut Tires	+ 2.00
21. Cut Tires	+ 5.00
Bolsters & Side Frames:	
22. Uncut	Base
23. Cut	+ 3.00
24. Angles, Splice Bars & Tie Plates	+ 5.00
25. Solid Steel Axles	+ 12.00
26. Steel Wheels, No. 3 oversize	Base
27. Steel Wheels, No. 3	+ 5.00
28. Spring Steel	+ 5.00
29. Couplers & Knuckles	+ 5.00
30. Wrought Iron	+ 8.00
31. Fireboxes	— 8.00
32. Boilers	— 6.00
33. No. 2 Sheet Scrap	— 13.00
34. Carsides, Doors, Car Ends, cut apart	— 6.00
35. Unassorted Iron & Steel	— 6.00
36. Unprepared scrap, not suitable for hydraulic compression	— 8.00

Preparation Charges

Ceiling fees per gross ton which may be charged for intranet preparation of any grade of steel scrap of dealer or industrial origin authorized by OPS are:

- (1) For preparing into Grades No. 3, No. 4 or No. 2, \$8.
- (2) For hydraulically compressing Grade No. 1, \$6 per ton; Grade No. 5, \$8.
- (3) For crushing Grade No. 6, \$3. For preparing into:
 - (4) Grade No. 25, \$6.
 - (5) Grade No. 19, \$6.
 - (6) Grades No. 12, No. 13, No. 14, No. 16, or No. 20, \$10.
 - (7) Grade No. 17 or No. 21, \$11.
 - (8) Grade No. 18, \$12.
 - (9) For hydraulically compressing Grade No. 15, \$8.
 - (10) For preparing into Grade No. 28, \$10.

Ceiling fees per gross tons which may be charged for intranet preparation of any grade of steel scrap of railroad origin shall be:

- (1) For preparing into Grade No. 1 and Grade No. 2, \$8.
- (2) For hydraulically compressing Grade No. 13, \$6.

For preparing into:

- (3) Grade No. 16, \$4.
- (4) Grade No. 17, \$5.
- (5) Grade No. 18, \$7.
- (6) Grade No. 21, \$4.
- (7) Grade No. 23, \$4.

Ceiling fees per gross ton which may be charged for intranet preparation of cast iron are limited to:

- (1) For preparing Grade No. 8 into grade No. 7, \$9.
- (2) For preparing Grade No. 3 into Grade No. 11, \$7.
- (3) For preparing Grade No. 3 into Grade No. 1, \$4.

CAST IRON SCRAP

Ceiling price per gross ton for following grades shall be f.o.b. shipping point:

Cast Iron:	
1. No. 1 (Cupola)	\$49.00
2. No. 2 (Charging Box)	47.00
3. No. 3 (Hvy Breakable)	45.00
4. No. 4 (Burnt Cast)	41.00
5. Cast Iron Brake Shoes	41.00
6. Stove Plate	46.00
7. Clean Auto Cast	52.00
8. Unstripped Motor Blocks	43.00
9. Wheels, No. 1	47.00
10. Malleable	55.00
11. Drop Broken Machinery	52.00

OPEN MARKET

(Delivered prices include broker's commission. Asterisk [*] denotes nominal price.)

Birmingham

(Delivered)

No. 1 cupola cast	\$42.00
Stove plate	37.00
Charging box cast	39.00-40.00
Heavy breakable	36.00-37.00
Drop broken machinery	42.00-43.00
Unstripped motor blocks	35.00-36.00

Boston

(F.o.b. shipping point)

No. 1 cupola cast	32.00
Heavy breakable	30.00
Stove plate	30.00
Unstripped motor blocks	28.00

Buffalo

(Delivered)

No. 1 heavy melting	37.00*
No. 2 heavy melting	37.00*
No. 1 bundles	38.00*
No. 1 busheling	38.00*
No. 2 bundles	37.00*
Machine shop turnings	27.00*
Mixed borings, turnings	31.00*
Cast iron borings	31.00*
Short shoveling turnings	31.00*
No. 1 cupola cast	41.00-42.00*
No. 1 machinery cast	42.00-43.00*

Chicago

(Delivered)

No. 2 heavy melting	42.50
No. 2 bundles	35.50
Machine shop turnings	26.00-27.00
Mixed borings, turnings	31.00-32.00
Shoveling turnings	31.00-32.00
Cast iron borings	31.00-32.00
No. 1 cupola cast	43.00-47.00

Charging box cast	39.00-41.00
Heavy breakable	36.00-38.00
Burnt cast	36.00-38.00
Cast iron brake shoes	40.00-41.00
Stove plate	36.00-41.00
Clean auto cast	43.00-45.00
Unstripped motor blocks	33.00-35.00
Malleable	48.00-50.00
Drop broken machinery	45.00-50.00

Cleveland

(Delivered)

No. 1 heavy melting	43.00
No. 2 heavy melting	38.00-39.00
No. 1 bundles	40.00-42.00
No. 2 bundles	38.00-39.00
Machine shop turnings	25.00-26.00
Mixed borings, turnings	29.00-30.00
Shoveling turnings	29.00-30.00
Cast iron borings	29.00-30.00
No. 1 cupola	48.00-49.00
Charging box cast	45.00-46.00
Burnt cast	45.00-46.00
Stove plate	45.00-46.00
Clean auto cast	48.00-49.00
Unstripped motor blocks	40.00-41.00
Malleable	51.00-52.00
Drop broken machinery	49.00-50.00

Detroit

(Brokers' buying prices; f.o.b. shipping point)

No. 1 cupola cast	46.00-47.00
Heavy breakable	42.00-43.00
Clean auto cast	48.00-49.00
Unstripped motor blocks	39.00*
Drop broken machinery	48.00-49.00
Charging box cast	45.00

New York

(Brokers' buying prices; delivered consumers' plants)

Cupola cast	38.00
Unstripped motor blocks	34.00

Philadelphia

(Delivered)

No. 1 heavy melting	41.50
No. 2 heavy melting	39.00
No. 1 bundles	42.50*
No. 2 bundles	39.00
No. 1 busheling	42.50*
Mixed borings, turnings	34.50
Machine shop turnings	34.50
Short shoveling turnings	34.50
No. 1 cupola cast	42.00
Unstripped motor blocks	35.00
Heavy breakable	42.50
Machinery cast	49.00

† Ceiling price.

Pittsburgh

(Delivered)

No. 2 heavy melting	39.00-42.00
No. 1 bundles	39.00-42.00
No. 2 bundles	39.00-42.00
Machine shop turnings	29.00-30.00
Shovel turnings	32.00-33.00
No. 1 cupola cast	46.00
Heavy breakable	45.00

San Francisco

(Delivered)

No. 2 bundles	30.00
No. 1 cupola cast	42.00

Seattle

(F.o.b. shipping point)

No. 2 bundles	29.00
No. 1 cupola cast	39.00-40.00
Heavy breakable	35.00-40.00

St. Louis

(Delivered)

No. 1 cupola	41.00
Stove plate	39.00
Unstripped motor blocks	35.00

Youngstown

(Delivered)

No. 2 heavy melting	35.00-39.00*
No. 2 bundles	38.00-39.00*
Machine shop turnings	34.00*

HAMILTON, ONT.

(Delivered Prices)

Heavy Melt	\$35.00
No. 1 Bundles	35.00
No. 2 Bundles	35.00
Mechanical Bundles	31.50
Mixed Steel Scrap	31.00
Mixed Borings, Turnings	32.00
Rails, Remelting	35.00
Rails, Rerolling	38.00
Busheling	29.50
Bushelings new factory:	
Prep'd	33.00
Unprep'd	31.00
Short Steel Turnings	32.00
Cast Iron Grades†	
No. 1 Machinery Cast	50.00

† F.O.B. shipping point.

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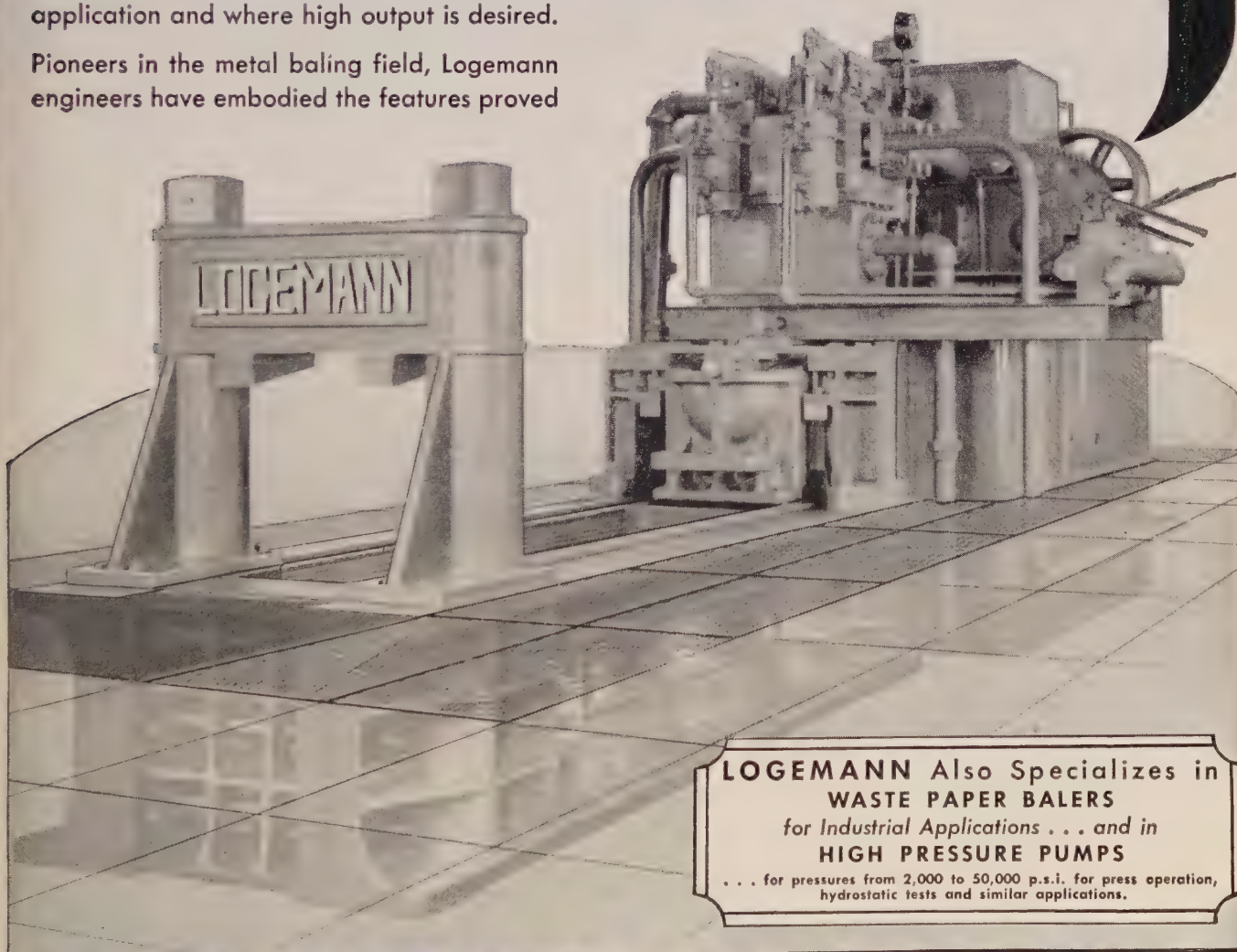
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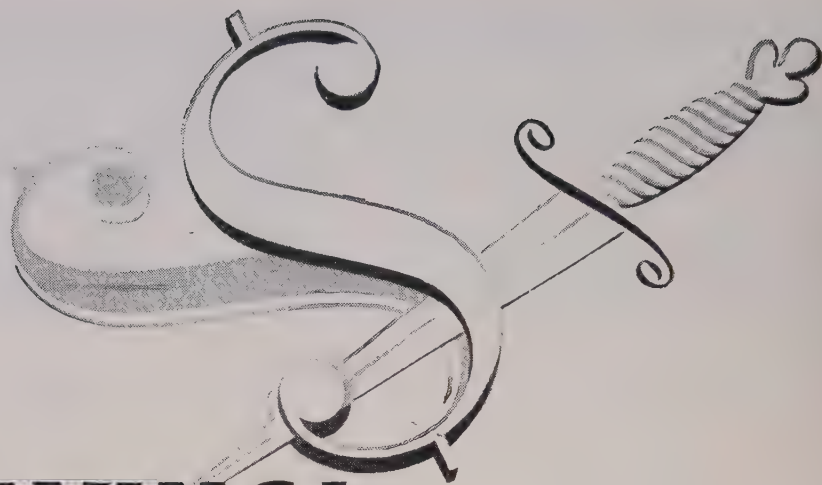
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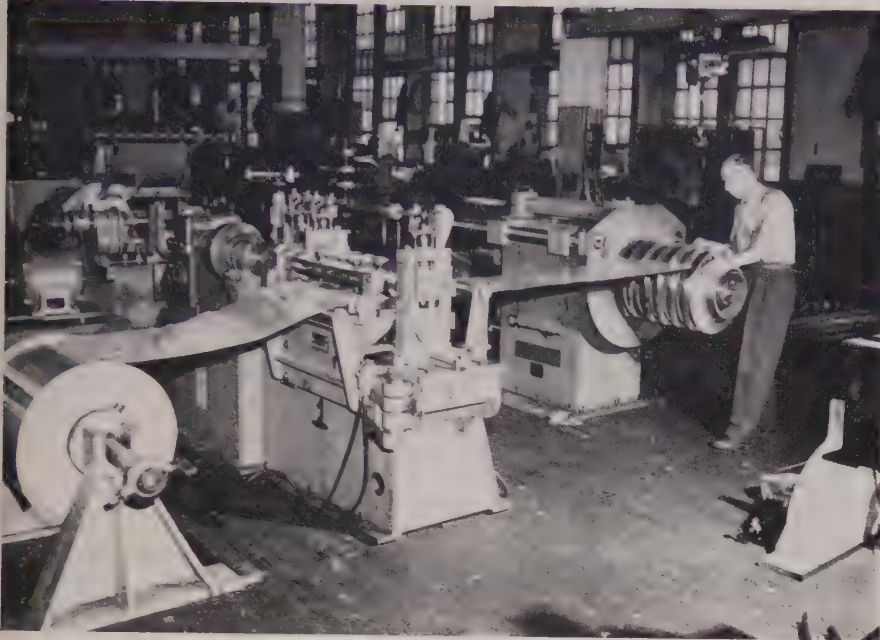
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New Slitter for New Warehouse

Seen above is a slitter installed by Torrington Mfg. Co., Torrington, Conn., in the new warehouse opened by American Brass Co. in Chicago early this summer

Watch the outcome of aluminum producers' request for price increases. They may be good gage of government price concessions on steel, copper and nickel

TODAY is the day aluminum producers are supposed to learn how much more they'll be able to charge for their product. If they don't get a firm answer, they'll at least have a good idea of what to expect. Tomorrow the aluminum fabricators state their case after studying the effect of a price increase on their products.

The Washington parleys will be followed closely by suppliers and fabricators of other metals too. The meetings may prove to be an accurate gage of the government's price concessions in steel, copper and possibly nickel.

Matter of Faith — The formula stressed by acting Defense Mobilizer John Steelman in the steel case has been followed partially in aluminum: Settle with workers before applying for price relief.

Alcoa, still negotiating with the CIO steelworkers representing nine plants, requested a 2-cent increase in aluminum pig and 10 per cent on ingot, semifinished and finished products after settling with A. F. of L. in six plants.

Follow the Fold—Kaiser inked a contract with the steelworkers for a

20-cent hourly boost for its 5000 employees in four plants, relying on the "fairness of the government" to adjust prices to meet increased costs. It promptly told the Office of Price Stabilization it thought a fair price would be 12½ per cent across the board.

That would lift aluminum ingot to 21.375 cents, pig to 20.25 cents. If it didn't get a break, Kaiser said it would have to cut down facilities expansion. To the steel companies, that argument has been ineffective, but then, they didn't follow the rules. To some copper companies, the government has tendered subsidies to make up for unprofitable mine operations.

No Stampede — The wage-price situation in aluminum is stirring a little extra buying interest, but no one is panicky enough to lay in heavy supplies, as has been the case in copper. If they learn which way the wind is blowing from this week's talks, perhaps there will be more positive action.

Indication of the near-term supply situation in aluminum comes from export quotas for the fourth quarter. They were set at double the

third-quarter allowance — 3000 tons. For copper and copper-base products the quota was shaved slightly to 5160 tons.

Copper Allocations Cut

August allocations of domestic copper were cut over 10 per cent because of price difficulties tying up some tonnage and some lost in July strikes. Allocations are set at 72,000 tons of domestic; entitlement to buy foreign copper remained at 53,000 tons.

Copper users reduced backlog for refined in June by 5500 tons, as new business booked was exceeded by consumption. Fabricators' stocks of refined going into July had gained almost 5000 tons to a level of 245,730 tons.

Stock Building Encouraged

NPA is encouraging distributors of brass mill and copper wire mill products to rebuild their stocks by allowing them to place heavier orders with mills. With base period inventory as a top ceiling, brass mill distributors may—in addition to replacing their previous month's sales—order 15 per cent of the difference between their present inventory and that of base period. Wire mill product distributors may order up to 150 per cent of previous month's sales each month until they reach base period levels.

Nonferrous Briefs

Bolivia is willing to enter a long-term contract for half her tin output at \$1.215 . . . Foreign copper for fourth-quarter delivery is being offered at 33 and 34 cents . . . Restriction on use of aluminum as an oxidation agent have been loosened, while foil and powder were freed from control entirely . . . Duty on imported zinc was reinstated . . . Dow Chemical Co. is entering the titanium metal field . . . All inventory limitations on zinc, cadmium, antimony, bismuth have been lifted . . . Calumet & Hecla will pump out its flooded Osceola mine in Michigan to produce 53,000 tons of copper for DMPA by mid-1962 at a floor price of 25.25 cents . . . Synthetic cryolite expansion programs are blossoming again as a result of the expanded needs in the aluminum industry.

NONFERROUS METALS

(Cents per pound, carlots, except as otherwise noted)

Primary Metals

Copper: Electrolytic 24.50c, Conn. Valley; Lake 24.62½c, delivered.**Brass Ingots:** 85-5-5-5 (No. 115) 27.25c, 88-10-2 (No. 215) 40.00c; 80-10-10 (No. 305) 33.00c; No. 1 yellow (No. 405) 23.25c.**Zinc:** Prime western 15.00c; brass special 15.25c; intermediate 15.50c, East St. Louis; high grade 16.35c, delivered.**Lead:** Common 15.80c; chemical 15.90c; cor-rod 15.90c, St. Louis.**Primary Aluminum:** 99% plus, ingots 19.00c, pigs 18.00c. Base prices for 10,000 lb and over. Freight allowed on 500 lb or more but not in excess of rate applicable on 30,000 lb c.l. orders.**Secondary Aluminum:** Piston alloys 19.50c; No. 12 foundry alloy (No. 2 grade) 18.50c; steel deoxidizing grades, notch bars, granulated or shot; Grade 1, 18.80c; grade 2, 18.60c; grade 3, 17.40c; grade 4, 17.20c.**Magnesium:** Commercially pure (99.8%) standard ingots, 10,000 lb and over 24.50c, f.o.b. Freeport, Tex.**Tin:** Grade A, prompt 121.50c.**Antimony:** American 99-99.8% and over but not meeting specifications below 39.00c; 99.8% and over (arsenic 0.05% max., other impurities 0.1% max.) 39.50c; f.o.b. Laredo, Tex., for bulk shipments.**Nickel:** Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 56.50c; 25-lb pigs, 59.15c; "XX" nickel shot, 60.15c; "F" nickel shot or ingots, for addition to cast iron, 56.50c. Prices include import duty.**Mercury:** Open market, spot, New York, \$190-\$195 per 76-lb flask.**Beryllium-Copper:** 3.75-4.25% Be, \$1.56 per lb of alloy, f.o.b. Reading, Pa.**Cadmium:** "Regular" straight or flat forms, \$2.25 del; special or patented shapes \$2.40.**Cobalt:** 97.99%, \$2.40 per lb for 500 lb (kegs); \$2.42 per lb for 100 lb (case); \$2.47 per lb under 100 lb.**Gold:** U. S. Treasury, \$35 per ounce.**Silver:** Open market, New York 82.75¢ per oz.**Platinum:** \$90-\$93 per ounce from refineries.**Palladium:** \$24 per troy ounce.**Iridium:** \$200 per troy ounce.**Titanium** (sponge form): \$5 per pound.

Rolled, Drawn, Extruded Products

COPPER AND BRASS

(Ceiling prices, cents per pound, f.o.b. mill, effective July 1, 1952)

Sheet: Copper 45.52; yellow brass 40.17; commercial bronze, 95% 45.15; 90% 44.38; red brass, 85% 43.10; 80% 42.34; best quality, 41.35; nickel silver, 18%, 55.08; phosphor-bronze grade A, 5%, 64.71.**Rod:** Copper, hot-rolled 41.37; cold-drawn 42.62; yellow brass free cutting, 33.85; commercial bronze 95%, 44.84; 90% 44.07; red brass 85%, 42.79; 80%, 42.03.**Seamless Tubing:** Copper 45.56; yellow brass 43.18; commercial bronze, 90%, 47.04; red brass, 85%, 46.01.**Wire:** Yellow brass 40.46; commercial bronze, 95%, 45.44; 90%, 44.67; red brass, 85%, 43.39; 80%, 42.63; best quality brass, 41.64.

(Base prices, effective July 1, 1952)

Copper Wire: Bare, soft, f.o.b. eastern mills, 100,000 lb lots, 32.795; 30,000 lb lots, 32.92; l.c.l., 33.42, Weatherproof, 100,000 lb, 33.60; 30,000 lb, 33.85; l.c.l., 34.35. Magnet wire del., 15,000 lb or more, 38.75; l.c.l., 39.50.

ALUMINUM

(30,000 lb base; freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.l. orders)

Sheets and Circles: 2s and 3s mill finish c.l.

Thickness Range Inches	Widths or Diameters In., Inc.	Flat Sheet Base*	Coiled Sheet Base	Coiled Sheet Circle† Base
0.249-0.136	12-48	30.1	...	...
0.135-0.096	12-48	30.6	...	...
0.095-0.077	12-48	31.2	29.1	33.2
0.076-0.061	12-48	31.8	29.3	33.4
0.060-0.048	12-48	32.1	29.5	33.7
0.047-0.038	12-48	32.5	29.8	34.0
0.037-0.030	12-48	32.9	30.2	34.6
0.029-0.024	12-48	33.4	30.5	35.0
0.023-0.019	12-36	34.0	31.1	35.7
0.018-0.017	12-36	34.7	31.7	36.6
0.016-0.015	12-36	35.5	32.4	37.6
0.014	12-24	36.5	33.3	38.9
0.013-0.012	12-24	37.4	34.0	39.7
0.011	12-24	38.4	35.0	41.2
0.010-0.0095	12-24	39.4	36.1	42.7
0.009-0.0085	12-24	40.6	37.2	44.4
0.008-0.0075	12-24	41.9	38.4	46.1
0.007	12-18	43.3	39.7	48.2
0.006	12-18	44.8	41.0	52.8

* Lengths 72 to 180 inches. † Maximum diameter, 26 inches.

Screw Machine Stock: 5000 lb and over.

Dia. (in.)	Round— or distance R317-T4	Hexagonal— R-317-T4	17S-T4
across flats	17S-T4	R-317-T4	17S-T4
0.125	52.0	...	...
0.156-0.0188	44.0	...	...
0.219-0.313	41.5	...	...
0.375	40.0	46.0	48.0
0.406	40.0	...	...
0.438	40.0	46.0	48.0
0.469	40.0	...	...
0.500	40.0	46.0	48.0
0.531	40.0	...	...
0.563	40.0	...	45.0
0.594	40.0	...	...
0.625	40.0	43.5	45.0
0.688	40.0	...	45.0
0.750-1.000	39.0	41.0	42.5
1.063	37.5	...	41.0
1.125-1.500	37.5	39.5	41.0
1.563	37.0	...	...
1.625	36.5	...	39.5
1.688-2.000	36.5	...	...

LEAD

(Prices to jobbers f.o.b. Buffalo, Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more \$21.00 per cwt; add 50c cwt 10 sq ft to 140 sq ft. Pipe: Full coils \$21.00 per cwt. Traps and bends: List prices plus 50%.

ZINC

Sheets 23.00c, f.o.b. mill 36,000 lb and over. Ribbon zinc in coils, 21.25c, f.o.b. mill, 36,000 lb and over. Plates, not over 12-in., 22.50c; over 12-in., 22.50-23.00c.

"A" NICKEL

(Base prices f.o.b. mill)

Sheets, cold-rolled, 77.00c. Strip, cold-rolled, 83.00c. Rods and shapes, 73.00c. Plates, 75.00c. Seamless tubes, 106.00c.

MONEL

(Base prices f.o.b. mill)

Sheets, cold-rolled 60.50c. Strip, cold-rolled 63.50c. Rods and shapes, 58.50c. Plates, 59.50c. Seamless tubes, 93.50c. Shot and blocks, 53.50c.

MAGNESIUM

Extruded Rounds 12 in. long, 1.31 in. in diameter, less than 25 lb, 55.00-62.00c; 25 to 99 lb, 45.00-52.00c; 100 lb to 5000 lb, 41.00c.

TITANIUM

(Prices per lb 10,000 lb and over, f.o.b. mill) Sheets, \$15; sheared mill plate, \$12; strip, \$15; wire, \$10; forgings, \$6; hot-rolled and forged bars, \$6.

Plating Materials

Chromic Acid: 99.9% flakes, f.o.b. Philadelphia, carloads, 28.00c; 5 tons and over 28.50c; 1 to 5 tons, 29.00c; less than 1 ton 29.50c.**Copper Anodes:** Base 2000 to 5000 lb; f.o.b. shipping point, freight allowed: Flat, rolled, 38.34c; oval 37.84c.**Nickel Anodes:** Rolled oval, carbonized, carloads, 74.50c; 10,000 to 30,000 lb 75.50c; 3000 to 10,000 lb 76.50c; 500 to 3000 lb 77.50c; 100 to 500 lb, 79.50c; under 100 lb, 82.50c, f.o.b. Cleveland.**Nickel Chloride:** 36.50c in 100 lb bags; 34.50c in lots of 400 lb through 10,000 lb; 34.00c over 10,000 lb, f.o.b. Cleveland, freight allowed on 400 lb or more.**Sodium Stannate:** 25 lb cans only, less than 100 lb to consumers 86.7c; 100 or 350 lb drums only, 100 to 600 lb 71.60c; 700 to 1900 lb, 69c; 2000 to 9900 lb, 67.3c. Freight allowed east of Mississippi and north of Ohio and Potomac rivers.**Tin Anodes:** Bar, 1000 lb and over, \$1.375; 500 to 999 lb, \$1.35; 200 to 499 lb, \$1.385; less than 200 lb, \$1.40. Freight allowed east of Mississippi and north of Ohio and Potomac.**Zinc Cyanide:** 100 lb drums, less than 10 drums 54.30c, 10 or more drums, 52.30c, f.o.b. Niagara Falls, N. Y.**Stannous Sulphate:** 100 lb kegs or 400 lb bbl, less than 2000 lb \$1.11; more than 2000 lb, \$1.09. Freight allowed east of Mississippi and north of Ohio and Potomac rivers.**Stannous Chloride (Anhydrous):** In 400 lb bbl, 98.5c; 100 lb kegs 99.5c. Freight allowed.

Scrap Metals

Brass Mill Allowances

Ceiling prices in cents per pound for less than 20,000 lb, f.o.b. shipping point, effective June 26, 1951.

	Clean Heavy	Rod Ends	Clean Turnings
Copper	21.50	21.50	20.75
Yellow Brass	19.25	18.875	17.875
Commercial Bronze			
95%	20.50	20.25	19.75
90%	20.50	20.25	19.75
Red Brass			
85%	20.25	20.00	19.375
80%	20.125	19.875	19.375
Muntz metal	18.125	17.875	17.375
Nickel silver, 10%	21.50	21.25	20.75
Phos. Bronze, 5%	25.25	25.00	24.00

Copper Scrap Ceiling Prices

(Base prices, cents per pound, less than 40,000 lb f.o.b. point of shipment)

Group I: No. 1 copper 19.25; No. 2 copper wire and mixed heavy 17.75; light copper 16.50; No. 1 borings 19.25; No. 2 borings 17.75; refinery brass, 17.00 per lb of dry Cu content for 50 to 60 per cent material and 17.25 per lb for over 60 per cent material.

Group II: No. 1 soft red brass solids 18.50; No. 1 composition borings 19.25 per lb of Cu content plus 63 cents per lb of tin content; mixed brass borings 19.25 per pound of Cu content plus 60 cents per lb of tin content; unlined red car boxes 18.25; lined red car boxes 17.25; cocks and faucets 16.00; mixed brass screens 16.00; zincy bronze solids and borings 16.25.

Aluminum Scrap Ceiling Prices

(Cents per pound, f.o.b. point of shipment, less than 5000 lb)

Segregated plant scrap: 2s solids, copper free, 10.50; high grade borings and turnings, 8.50; No. 12 piston borings and turnings, 7.50. Mixed plant scrap: Copper-free solids, 10.00; dural type, 9.00. Obsolete scrap: Pure old cable, 10.00; sheet and sheet utensils, 7.25; old castings and forgings, 7.75; clean pistons, free of struts, 7.75; pistons with struts, 5.75.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots)

Lead: Heavy 12.00-12.25; battery plates 7.00-7.50; linotype and stereotype 13.50-14.00; electrolyte 12.00-12.50; mixed babbit 14.50-14.75.

SMELTERS' BUYING PRICES

(Cents per pound, New York, in ton lots)

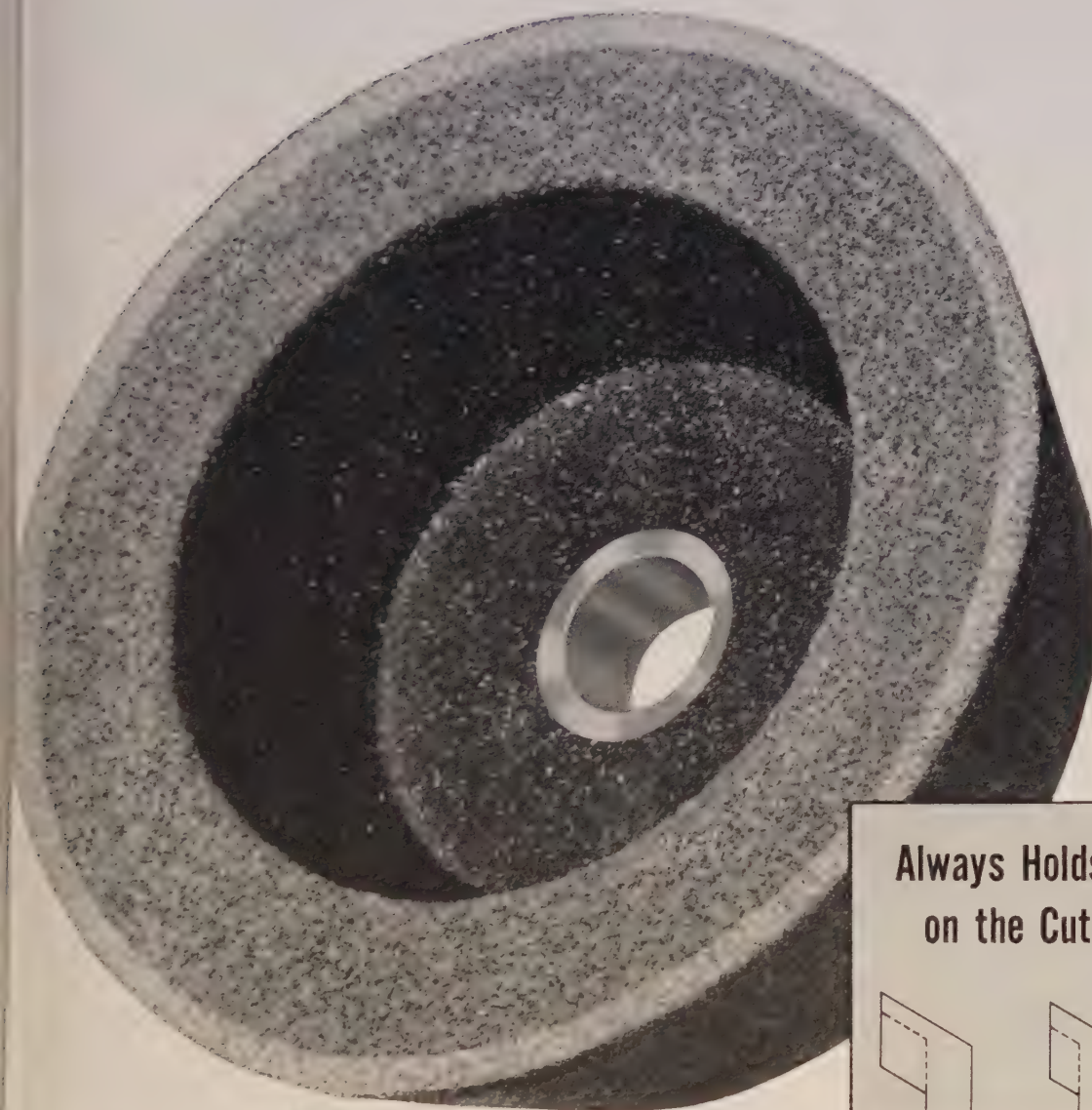
Zinc: Old zinc, 6.00-6.50; new die cast scrap, 6.00-6.50; old die cast scrap, 5.00-5.50.

DAILY PRICE RECORD

	Copper	Lead	Zinc	Tin	Alu- minum	An- timony	Nickel	Silver
1952								
July 1-24	24.50	15.80	15.00	121.50	19.00	39.00	56.50	82.75
June 24-30	24.50	15.80	15.00	121.50	19.00	39.00	56.50	82.75
June 23	24.50	15.80	15.00	121.50	19.00	39.00	56.50	82.75
June 18-21	24.50	14.30	15.00	121.50	19.00	39.00	56.50	82.75
June 5-17	24.50	14.80	16.00	121.50	19.00	39.00	56.50	82.75
June 2-4	24.50	14.80	17.50	121.50	19.00	39.00	56.50	82.75
June Avg.	24.50	15.06	15.74	121.50	19.00	39.00	56.50	82.75
May Avg.	24.50	15.519	19.50	121.50	19.00	42.077	56.50	85.356
Apr. Avg.	24.50	18.723	19.50	121.50	19.00	49.077	56.50	88.00
Mar. Avg.	24.50	18.80	19.50	121.50	19.00	50.00	56.50	88.00
Feb. Avg.	24.50	18.80	19.50	121.50	19.00	50.00	56.50	88.00
Jan. Avg.	24.50	18.80	19.50	109.404	19.00	50.00	56.50	88.00

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. St. Louis; Zinc, prime western, E. St. Louis; Tin, Stratis, del. New York; Aluminum primary ingots, 99%, del.; Antimony, bulk, f.o.b. Laredo, Tex.; Nickel, electrolytic cathodes, 99.9%, base sizes at refinery unpacked. Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

How U. S. Rubber improved cup wheels



**Always Holds its Shape
on the Cutting Edge**

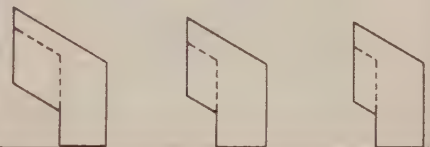


Diagram shows how the grinding face wears down evenly and the outer cutting edge remains sharp.

"U.S." technicians put an encircling rim, extra-tough and wear-resistant, around the free-cutting face of this Royalite® Hard-Shell Cup Wheel. As a result, the cutting edge does not become rounded. Hard-to-reach corners can be accurately ground because the edge does not break down. This free-cutting resinoid cup wheel retains its "true" shape throughout its entire service life.

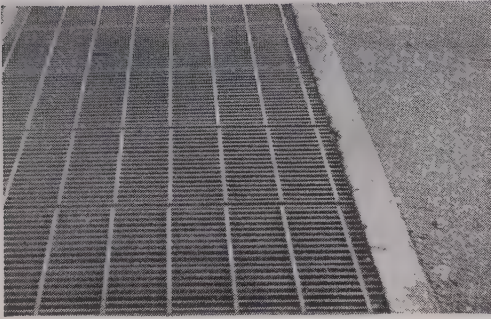
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withstands weight of heaviest trucking, inside or outside of industrial plants . . . excellent for drainage applications . . . for coal grizzlies . . . and wherever it is

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In prominent steel casting plant, Hendrick heavy-duty grating used for breakout floors has paid for itself many times over in reclaimed sand.

Bearing bars range in size from $2\frac{1}{4}'' \times \frac{3}{8}''$ to $4'' \times \frac{3}{8}''$; cross bars from $2'' \times \frac{5}{16}''$ to $2\frac{1}{2}'' \times \frac{5}{16}''$; to meet requirements of loading conditions. Write for complete specifications.



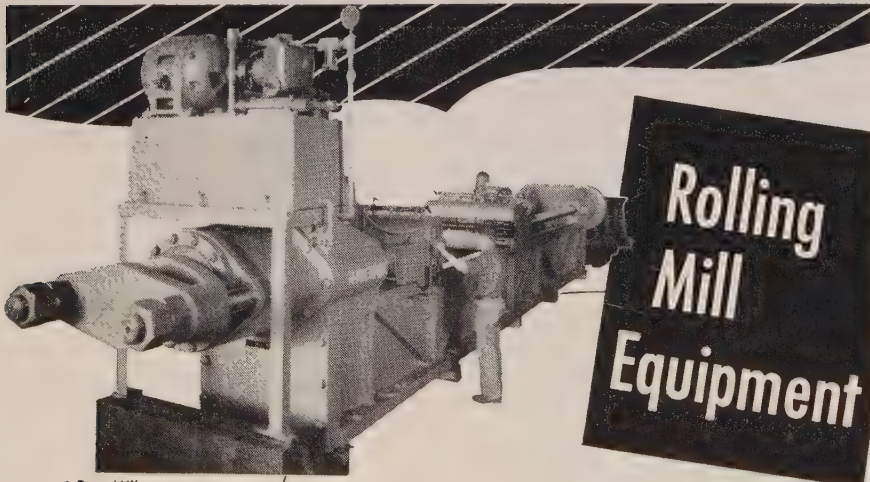
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Tubular Goods . . .

Tubular Goods Prices, Page 123

New York—Merchant pipe will be one of the few major items which steel producers can start at once shipping fully after the strike ends. Merchant pipe mills carry at least one to two months' supply in stock from which the assorted requirements of buyers are taken. When the strike closed these mills early in June, they had such inventories on hand.

Boston — Distributors' stocks of tubular products are low. Consumers taking direct shipments are confronted with shortages of pipe. Because of the lag in fencing demand before the strike most users failed to take in all allotments, and are now short of pipe.

Los Angeles—Oil companies are placing orders with brokers for European-made tubing at \$305 per metric ton laid down, or \$285 f.o.b. Hamburg.

Sheets, Strip . . .

Sheet and Strip Prices, Page 119 & 120

Pittsburgh—Heavy carryovers of sheets will eat into fourth quarter tonnage availability. Most mills have enough orders to more than last through end of the year. Scarcity will continue, with users jockeying to get orders filled during first half of 1953. Conversion is being considered by some, and there is more interest in foreign steel than there has been for some time. There seems little likelihood a gray market will develop as a result of the shortage, however. Most inventories are rapidly being depleted to fill present requirements, leaving little available for future gray market operators.

Cleveland—Tight supply conditions are expected in the sheet market until well into 1953. Virtually no open space will be available for fourth quarter, output in the period being devoted to caring for the indicated carryover from third quarters. This will be unusually heavy due to the lost production of the last two months unless orders now on books are canceled. Few, if any, cancellations are expected. However, cutbacks in third quarter tonnage are likely to accommodate government directives on defense account which are expected in sizable volume once the mills resume rolling.

Boston—Stampers and other users of flat-rolled steel are down and many plants still operating are nearing the end of the rope as regards steel supply. Most users are resigned to long delays in shipments when production resumes, which will extend plant shutdowns.

New York—While some sheet producers have not been forced to suspend because of strikes, they are having difficulties as a result of an increasing shortage of ingot molds.

Philadelphia—Most sheet fabricators were better off on inventories before the steel strike began than other consumers of major steel products. As a result they have been able to operate with less difficulty.

Birmingham—Pressure for sheets is not evident but only because there are no sheets available. Need for sheets is as great as ever and it is believed current requirements will tighten the supply situation well into

he fourth quarter even should the steel strike end within the next few days.

St. Louis—Majority of sheet output here is under military priority. Resumption of operations by Granite City Steel Co. brought a flood of outside inquiries, but there was little pressure from established customers, most of whose inventories are above the danger line.

Semifinished Steel . . .

Semifinished Prices, Page 119

Detroit—A threat to steelmaking operations is contained in the shrinking stocks of ingot molds at currently operating mills. No plant here regards shutdown for lack of molds imminent, but within the next two to five weeks the shortage may become critical.

Steel Bars . . .

Bar Prices, Page 119

Cleveland—Each day the steel strike is prolonged intensifies the shortage of bars for the months ahead. Little, if any, open rolling time will be available to consumers for fourth quarter. Production in the period will be taken up largely by the carryover from third quarter. Also, government directives on military account will defer shipments of some booked tonnage on regular account possibly into first quarter next year. One producer of alloy bars operating currently is shipping virtually all its output under government directives. This mill, incidentally, is reported facing curtailment of furnace activity unless it is able to avert threatened shortage of ingot molds.

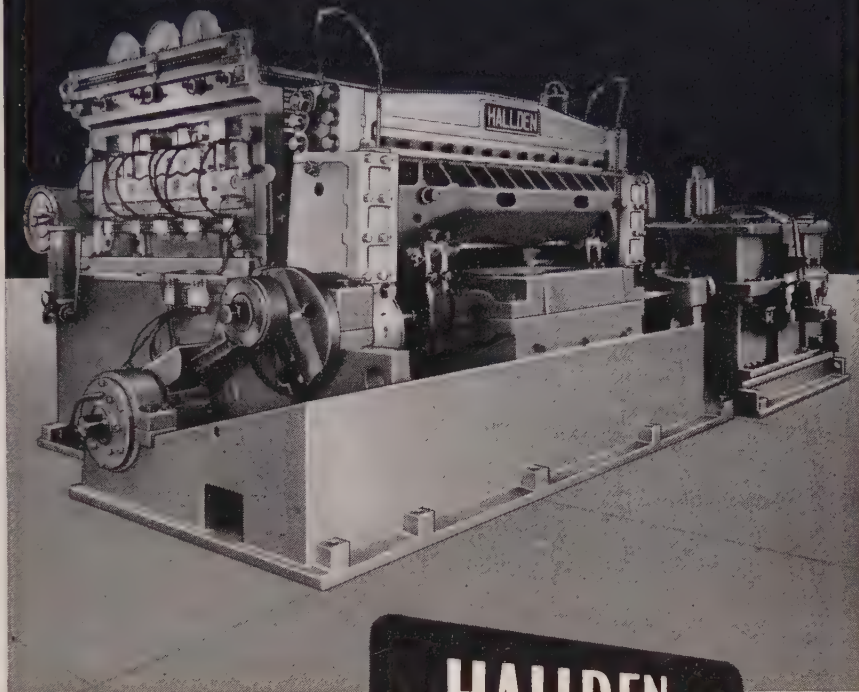
Detroit—Auto makers' interest in conversion steel centers in carbon bars and forging billets, but lack of sources of ingots appears to be a greater bottleneck to conversion activities than mill rolling space. Cold drawn bars in the smaller diameter have been one of the few fairly plentiful items during the strike but now stocks of these are almost exhausted.

Chicago—Wisconsin Steel Co. is the only barmaker in this district not strike-bound. However, bulk of its output is being channeled by government directive into direct military and high-rated defense programs. Shipments to warehouses are unaffected but individually these involve only small tonnages. Cold drawers have reduced operations to one or two days a week for lack of material to process.

Boston—Only a trickle of cold-finished bars is coming off converters' mills as inventories of hot bars vanish. Outlook for hot-rolled bars for fourth quarter is dubious with less than one month open for new orders. Some mills expect to have no space open at all in the period. Direct procurement of bars for defense has been substantial and deliveries are likely to be extended beyond dates specified. Initial production when rolling is resumed will be directed to consumers with armament contracts.

New York—Even once the steel strike is ended, it appears that buying of hot carbon bars will be on a hand-to-mouth basis for some weeks to come. Producers hold little hope of being able to schedule new ton-

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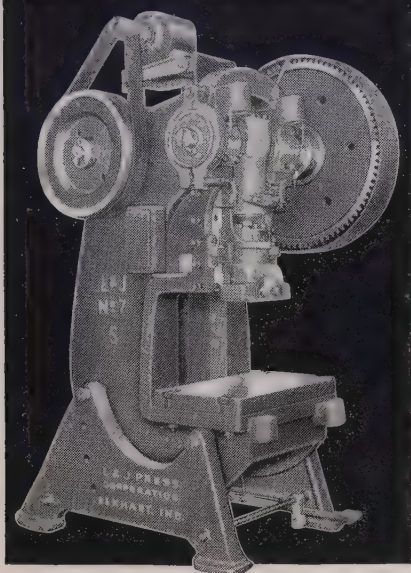
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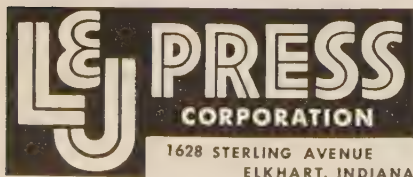
The reputation of L & J Presses has been built by doing tough jobs—close-tolerance jobs that require sustained accuracy. These rigid, precision-built presses have simplified difficult press work on a wide range of applications. They are built for it! Heavy, deflection resistant frames... ruggedly designed slides with extra long gibs... and many other important features all contribute to their efficient operation.

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nage for shipment this year, except in the case of high rated defense needs, which would force out less important tonnage already scheduled, or at least cause further deferment of such tonnage.

Pittsburgh—Hot-rolled merchant bar buyers face rough supply conditions well into 1953. In the opinion of sellers little new tonnage business can be accepted for the remainder of the year. Carryovers from third to fourth quarter will take up virtually all production in that period. Further, directives on producers for military and other defense needs will force postponement of shipments on regular account.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 119

Los Angeles—Fabricators of reinforcing bars face shutdown after their present limited stocks are gone. Only reinforcing material available to them is premium-priced at 8 to 15 cents a pound.

Plates . . .

Plate Prices, Page 119

Boston—What plate tonnage is available sells at premium prices. Some shops are unable or unwilling to add to costs. Although inventories of light plates are lower, stocks with some shops are fair due to slackening demand for fabricated products, including small tanks. Heavier plates are exhausted with most. Oil storage capacity is being increased substantially in New England, but some programs will be delayed. Esso Standard Oil Co. is planning additional tanks at Providence, R. I., and Hallowell, Me.

New York—The few plate mills in operation are fast being booked up with high rated tonnage under government regulation which requires them to accept high priority tonnage for delivery up to Sept. 15, even though it crowds out low rated tonnage already booked. The rank and file of plate consumers anticipate not only a severe shortage for the rest of this year but well into next, even should a fairly early settlement of the steel strike be made.

Philadelphia—Plate fabricators are curtailing operations although few, if any, have suspended work entirely. With only two plate mills operating along the eastern seaboard and with these companies receiving an ever increasing amount of top-rated tonnage, some fabricators, with work not carrying high preferences, expect to close down shortly.

Pittsburgh—Plate fabricators are increasingly concerned over supplies of steel over remainder of the year. They have placed heavy tonnage for third quarter with the mills, but loss of production due to the extended steel strike has pushed deliveries into fourth quarter to the extent little new tonnage, in all likelihood, can be accepted for fourth quarter by the producers.

Birmingham—Plate users are getting by only because of reduced production schedules and in a few instances complete cessation of operations. This situation foreshadows a very heavy demand for plates when steel production is resumed.

Tin Plate . . .

Tin Plate Prices, Page 120

San Francisco—An alarming statement by the Cannerymen's League of California focuses attention on the shortage of tin plate. The league, after conferring with the two leading can suppliers of the West Coast, told its members that if the nation's steel strike continues indefinitely, the best available estimates, based on the supply of tin cans presently available, indicate that more than 50 per cent of the California canning fruit crop

Wanted: More Capacity Electrolytic Tin Plate

CAPACITY: JAN. 1, 1950

2.8 Million

Net Tons

DEFENSE PROD. ADM. GOAL: JAN. 1, 1954

4.1 Million

Net Tons

Continuous Galvanized Sheet and Strip

CAPACITY: JAN. 1, 1950

600,000 Net Tons

DEFENSE PROD. ADM. GOAL: JAN. 1, 1954

1.3 Million Net Tons

Among the seven new goals the Defense Production Administration set up for the nation's iron and steel industry are those for increasing capacity for producing electrolytic tin plate and continuous galvanized sheet and strip. Other goals are for iron ore, Great Lakes ore carriers, ocean-going bulk ore carriers, metallurgical grade ore, manganese ore and columbite and tantalite ores.

and more than 80 per cent of the state's canning tomato crop will be lost to total losses for lack of containers. Kaiser Steel Corp. now is producing some tin plate on its new mill at Fontana, Calif., but it is not believed volume production will be reached in time to help substantially in the present emergency.

Pittsburgh—Tin plate picture is anything but bright, especially for the food packing industry. West Coast canning plants stand in jeopardy as their inventories fall close to the danger point.

Wire . . .

Wire Prices, Page 121

New York—The steel strike is sharply cutting consumers' inventories of manufacturers wire. Suspensions for mass vacations cushioned the impact to some extent.

Birmingham—With wire products in consistently good demand in this predominantly agricultural section, an intense clamor for the product is certain to be evident in the weeks immediately following settlement of the steel strike.

Structural Shapes . . .

Structural Shape Prices, Page 119

Boston—Lack of structurals is extending fabricating shop schedules. Third quarter rollings will take up the bulk of fourth quarter production. Assuming early strike settlement, fourth quarter rollings could not start with some mills before February.

New York—A fair amount of structural inquiry is out. It consists largely of public work, principally bridges. Considerable commercial work, which looked so promising in the late spring, is in the background, but it is unlikely to develop now for some time because of the stringency in steel resulting from the strike.

Philadelphia—Structural steel market is listless. Except for bridge-work, little tonnage is being offered; and there doesn't seem to be quite the interest on the part of fabricators in estimating such work as is coming out, due possibly to uncertainty as to steel supplies.

Pittsburgh—Structural shape consumers are scraping the bottom of the barrel in an effort to sustain fabricating operations at least on a partial basis with inventories getting increasingly slim. There is no present attempt to place orders for fourth quarter with the mills and considerable doubt exists as to obtaining fulfillment of even third quarter carryovers.

Los Angeles—Despite fabricators' pessimism over availability of future supplies of structural material, the \$130 million school building program started on schedule. Other projects continue to be put out for bid. The Navy will build a 1000-bed addition to the Navy hospital at San Diego.

Pig Iron . . .

Pig Iron Prices, Page 118

Chicago—Shortage of pig iron continues to throttle foundry operations. Stretching of supply is common through use of more scrap in melts. A few emergencies have been averted by Wisconsin Steel Co. whose blast furnaces are operating but whose affiliated International Harvester foundries are closed down until end of the steel strike.

Pittsburgh—Pig iron supply is short and there is little likelihood of improvement unless demand drops. Foundry inventories are getting lower. Severest pinch is expected in fourth quarter. The strike created shortage will be intensified by the holding out of furnaces for relining after the work stoppage ends. One seller of basic iron is stockpiling for melting in fourth quarter in anticipation of a furnace suspension for repairs.

Pressure for specialty irons, such as silveries, is not extreme here, stocks being sufficient for current demand. Threatened shortage of ingot molds resulting from the strike may hamper full resumption of steel production when the strikers return to their jobs. Several steelworks now in operation face a mold shortage in the next couple weeks.

Cleveland—Foundrymen are showing more interest in pig iron with a shortage shaping up for the months ahead. Heavy loss of production these

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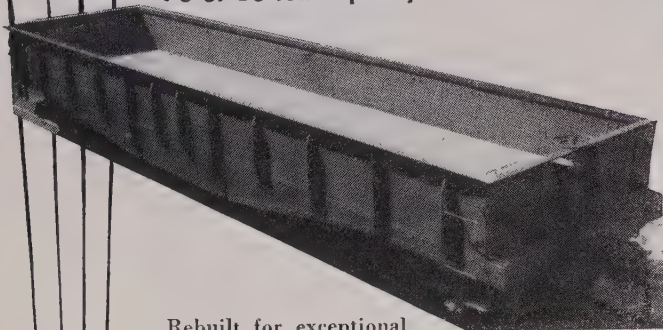
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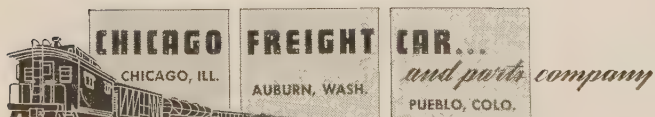
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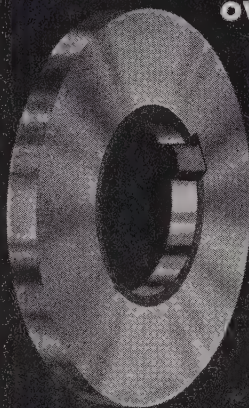


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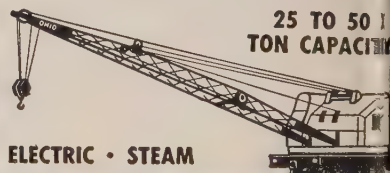
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st two months will put a severe strain on merchant supplies later in the year, especially should demand for castings spurt. The situation in pig iron is reflected in a strengthening in prices on cast grades of scrap.

Boston—The blast furnace at Everett, Mass., has been called upon to furnish foundry pig iron to Pittsburgh district consumers in at least two cases. Due to shortages, less iron is being stocked, although July demand from contract consumers was at a low point.

New York—While most district day iron foundries report, if anything, a further slackening in their business, due in part to unsettling effects of the steel strike, they are showing increasing interest in iron.

Philadelphia—Decline in foundry business has not been comparable with the reduction in pig iron production resulting from the steel strike. Hence, demand for iron exceeds supply.

Birmingham—The district's lone current producer of pig iron is doling out its supply as best it can. Most pig iron users are resigned to the fact there is little tonnage to be had.

San Francisco—Pig iron is scarce. Kaiser Steel Corp. is using all it produces from its current two blast furnaces for its own expanded open-earth operations.

Iron Ore . . .

Iron Ore Prices, Page 125

San Francisco—Kaiser Steel Corp. soon will be hauling more iron ore to its Fontana, Calif., mill from its Eagle Mountain mine, 164 miles away. It purchased two additional 50-ton Baldwin diesel-electric locomotives for \$390,000 to supplement two others on the line and soon will be moving 50 per cent more iron ore to the mill. When a third blast furnace is completed, shipments will rise to 300,000 tons a month.

Scrap . . .

Scrap Prices, Page 126

Philadelphia—Cast scrap demand continues to strengthen, reflecting in part the shortage of pig iron. No. 1 cupola cast is higher at \$42, delivered; heavy breakable is at \$42.50; machinery cast, \$49. Also more strength is being shown in steel grades with No. 1 heavy melting once again at \$41.50, ceiling. Low phosphorus grades are moving better. One western broker is here offering ceiling prices on all grades for shipment to the West. Shipments of open hearth steel for Morrisville, Pa., have been suspended again, this time because of jurisdictional labor disputes.

Pittsburgh—Steel scrap is showing a slight strengthening. However, open-hearth grades are still quoted about \$2 under ceiling. Strike-bound steel mills have large supplies, and there is little storage space for additional inventory. Prices are expected to continue under ceiling until after the strike when mill inventories begin to dwindle. Cast scrap grades are stronger with the foundries using more in melts.

Cleveland—Below-ceiling prices quoted in the scrap market are nominal in the absence of sales. Renewed

strength has developed in the steel-making grades the past week or 10 days and indications are should a sale be made today it would be at the full ceiling price. Whereas only a few weeks back it was freely predicted in the trade that a period of price weakness extending 30 to 60 days would be experienced in the scrap market once the steel strike ended, today this view appears to have evaporated. Expected shortage of iron ore this winter and accompanying increased use of scrap is seen as largely behind the stronger market tone.

Detroit—With scrap generation slowed and operating mills pressing for good grade material, prices have firmed to ceiling on blast furnace grades. Cast scrap is in active demand from other than automotive foundries. A long-range shortage of scrap, aided by nonavailability of ore this winter, is expected.

Chicago—Contrary to earlier belief, end of the steel strike apparently will find steelmaking scrap adhering to ceiling prices. No. 1 heavy melting has maintained its position straight through although No. 2 transactions had been made at \$3 below ceiling. A nearby mill not strike-bound has just bought both grades at ceiling. Generation of scrap is declining as many manufacturing plants curtail or halt production schedules from steel shortage.

New York—Undertone of the scrap market is stronger. Ceiling price levels have not been restored but there is no pressure on the part of dealers to move tonnage, as was the case recently.

Buffalo—Surprising strength rules in the scrap market here with fresh buying interest reported in cast grades. Dealers' hopes are buoyed by reports that iron ore receipts are off to such extent this season as result of the strike, a shortage of ore is likely next spring.

Birmingham—Scrap is accumulating moderately on local yards, with no takers for most items in melting steel. Exceptions are railroad steel and a few specialties. Cast grades are not in consistent demand and brokers report no change from ceiling prices although a sale here and there at prices somewhat below ceiling is heard of.

St. Louis—The scrap market stiffened with two major mill consumers releasing earlier holdup orders. What brokers called "heavy" tonnages of No. 2 melting steel and bundles went at ceiling price, delivered. Cast market also firmed under sentiment that pig iron and finished steel prices will rise following a national strike settlement.

Los Angeles—With shortage of pig iron, No. 1 cupola cast is becoming scarce as foundry buying increases.

Metallurgical Coke . . .

Metallurgical Coke Prices, Page 123

Pittsburgh—Market picture is bleak for coke oven operators with foundries running out of pig iron and curtailing operations. Some orders are coming in, but these generally are from customers able to stockpile.

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Warehouse . . .

Warehouse Prices, Page 125

Cleveland—Some district steel distributors report stocks never were so depleted or unbalanced. After eight weeks during which time receipts from the mills have been little more than a trickle, inventories of some items are almost at vanishing point. July order volume is off, due to slackened demand stemming from vacations and other consuming plant suspensions, and also to the fact distributors have not been able to satisfy all the inquiry coming to them. Whether the warehouses after the strike will continue to get receipts on the basis of 100 per cent of their base tonnage is uncertain.

Chicago—Warehouses report good volume of inquiry but only a fraction of demand can be accommodated. Workers have been put on reduced hours because of the low operating level. There is some inventory of every product, but popular sizes and grades are sold out. Receipts are almost insignificant.

Boston—With several district warehouses idled by the strike, demand for steel from other district distributors is somewhat below expectations. This is notably true where premium-priced volume is involved. Nevertheless, stocks are broken to the extent an increasing number of orders cannot be filled.

New York—Most jobbers are cleaned out of popular sizes of steel, with material inroads now being made in the off-gages and sizes as consumers find it necessary to do

an increasing amount of substitution. Most distributors expect to keep going on at least a limited basis for as long as the steel strike may last. They figure consumers will be forced to suspend operations and that, therefore, there will be steel to sell for some time yet.

Philadelphia—Warehouse operators report the month now closing will be the lightest so far this year from the standpoint of volume. This is due to depletion of stocks because of the steel strike and also due to curtailments at consuming plants for vacations and other reasons.

San Francisco—Jobbers' inventories are way down. Some report a 50 per cent stock; others lower.

Fasteners . . .

Bolt, Nut, Rivet Prices, Page 123

Pittsburgh—Supply of bolts and nuts is tightening fast. Manufacturers are able to ship from stock, but their range of sizes is far from complete. Orders from fabricators have fallen off only slightly. One company reports more future delivery business this month than last. Stockpiling of nuts and bolts against an expected severe shortage is the answer. Bar and rod inventories of fastener makers are practically nonexistent.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

5300 tons, overpass, New Orleans, to American Bridge Co., Pittsburgh; Farnsworth & Chambers, Houston, general contractors. 650 tons, traffic interchange structure, Charlesgate, Boston, to Groisser & Shlager,

Somerville, Mass., through E. J. Mame Co., Boston, general contractor. 500 tons or more, structurals and reinforcing bars, warehouses, Memphis General Depot, Memphis, Tenn., to Bethlehem Steel Co. J. W. Bateson Co. Inc., Dallas, general contractor. 240 tons, plant addition, Doel Cam Corp., Boston, to Bethlehem Steel Co., Bethlehem, Pa., placed direct by owner. 100 tons or more, students' activities building, University of Tennessee, Knoxville, to Lloyd E. Jones Co., Chattanooga, Tenn.; reinforcing to William S. Trimble Co., Knoxville, representing Connors Steel Co., Birmingham.

STRUCTURAL STEEL PENDING

5000 tons, bridge superstructure, deck truss, Connecticut river, Agawam-Springfield, Mass.; bids Aug. 19, Boston. 3000 tons, state bridgework, Berks and Schuylkill counties, Pennsylvania; readvertises with C. W. Good, Lancaster, Pa., low general contract. 400 tons, research laboratory, Burrows Adding Machine Co., Paoli, Pa., pending. (Previously noted as involving unstated tonnage.) 100 tons, shapes and bars composite, welded girder bridge, Southbury, Conn.; bids Aug. 4, Hartford, Conn.

REINFORCING BARS . . .

REINFORCING BARS PLACED

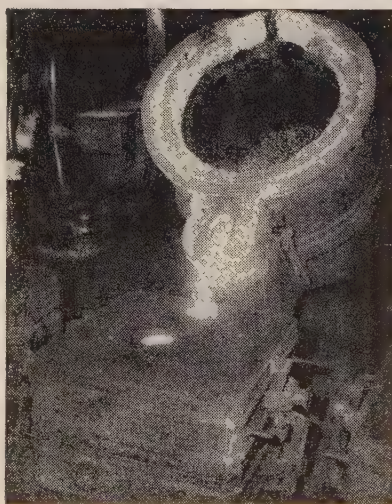
1330 tons, overpass, New Orleans, to Orleans Materials & Equipment Co. Inc., New Orleans; Farnsworth & Chambers, Houston, general contractors.

RAILS, CARS . . .

RAILROAD CARS PLACED

Atlantic Coast Line, 12 fifty-ton air dump cars, to the Eddystone, Pa., Division, Baldwin-Lima-Hamilton Corp., Eddystone. Kennecott Copper Corp., 55 ninety-ton air dump cars, to Eddystone, Pa. Division, Baldwin-Lima-Hamilton Corp., Eddystone.

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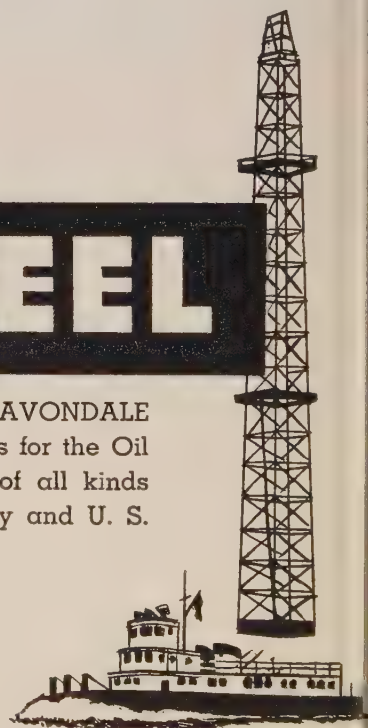


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CONSTRUCTION—ENTERPRISE—ORGANIZATIONAL CHANGES

Harrison Radiator To Boost Output

Harrison Radiator Division, General Motors Corp., Lockport, N. Y., is nearing completion of its \$3,931,000 expansion program. The new structure will provide an additional 350,000 square feet of space and enable the plant to boost defense production about 50 per cent.

American Steel Foundries Expands

American Steel Foundries, Chicago, started construction of an office building at its Hammond, Ind., plant which produces forgings, springs and other products for the railroad industry. The building, scheduled for completion next June, will cost about \$750,000.

Bierman Iron Opens New Department

Bierman Iron & Metal Co. Inc. opened a purchasing and sales department in the Arcade building, St. Louis 1. J. Walden Hargate, former vice president and director of purchases, Granite City Steel Co., will be associated with this department in the capacity of vice president.

Clevite Service Inc. Organized

A wholly owned subsidiary corporation, Clevite Service Inc., with headquarters at 6545 Carnegie Ave., Cleveland, was formed by Cleveland Graphite Bronze Co., that city, to take over the business of its Replacement Sales Division. Raymond Z. Oswald is president of the new subsidiary. Other officers are: Gilbert M. Salzman, vice president; A. M. Currier Jr., general sales manager; Wade O'Brian, comptroller; C. A. Dille, secretary; and K. M. Leighton, assistant secretary.

Yale & Towne Awards Plant Contract

Contract to build a lock and builders' hardware plant at Gallatin, Tenn., was awarded by Yale & Towne Mfg. Co., New York, to R. C. Mathews, Contractor Inc., Nashville, Tenn. The plant, to contain about 75,000 square feet of floor area, is scheduled for completion before the yearend.

National Lead Buys German Firm

National Lead Co., New York, which had a 50 per cent interest in Titanengesellschaft m.b.H., Leverkusen, Germany, acquired the remaining capital stock of that company. Titanengesellschaft operates a plant in the British Zone in Leverkusen, producing titanium dioxide pigments for European consumption. Erik Anker, managing director of Titan Co. A/S,

a National Lead subsidiary, will supervise over-all operations. Dr. F. Raspe will be in charge of operations at Leverkusen.

Drayer-Hanson Gets Defense Contract

Drayer-Hanson Inc., Los Angeles, will manufacture \$4 million worth of jettisonable fuel tanks under contract to the U. S. Air Force, bringing the company's backlog of orders for tanks to \$6 million.

Raymond Corp. Names Distributors

Raymond Corp., Greene, N. Y., manufacturer of electric trucks, hand hydraulic lift trucks, pallet trucks and other material handling equipment, appointed the following distributors: John F. Kramer, Kansas City, Mo.; Allied Equipment Co., Peoria, Ill.; J. K. Kessler & Associates, Tampa, Fla.; E. D. Flournoy Co., El Paso, Tex.; T. J. Ragan, Toledo, O.

Exide Batteries Plans Canadian Unit

Exide Batteries of Canada Ltd. purchased a 10-acre site on Warden avenue, Toronto, Ont., for construc-

tion of a \$1 million plant to house the company's industrial battery manufacturing operations.

Simplex Wire Erecting Building

Simplex Wire & Cable Co., Cambridge, Mass., is erecting an addition to its plant.

Latrobe Steel Moves Detroit Branch

Latrobe Steel Co., Latrobe, Pa., moved its Detroit branch office and warehouse to 26355 Mound Rd., Center Line, Mich. James H. Dodge is district manager.

New Program Cuts Castings Cost

Hitchiner Products Corp., West Hartford, Conn., initiated a program to reduce the cost of finishing precision investment castings and delivering them ready for assembly. This corporation was activated primarily to finish the castings of Hitchiner Mfg. Co. Inc., Milford, N. H., and has organized a selected group of machine shops and other finishing companies to perform the secondary operations on Hitchiner castings. This service will eliminate the excessive costs of subcontracting and handling by making one company responsible for supplying the finished castings. Hitchiner Products Corp. will supply the necessary engineering and inspection supervision and co-ordinate the scheduling

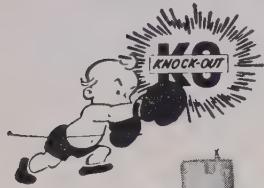


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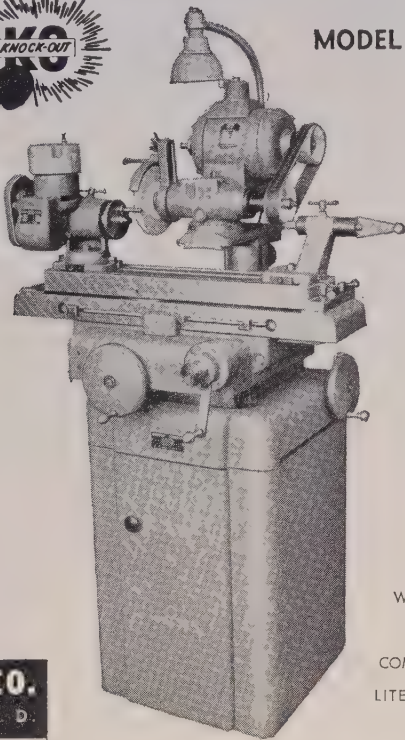


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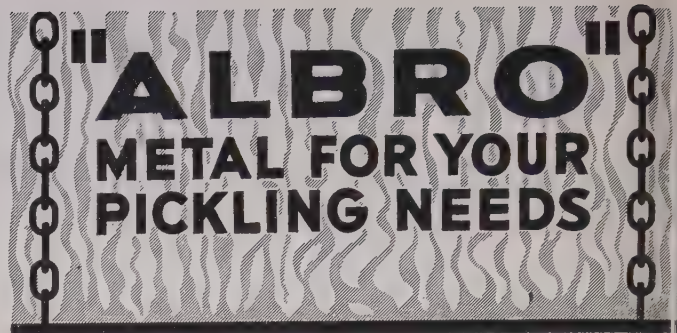
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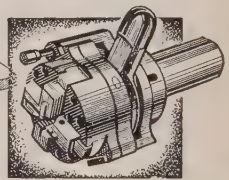
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and output of each shop, assuring parts meeting specifications and delivery. The engineering and direct supervision of the program will be under Philip J. McGoochan, vice president. The company's program will include also the machining of other types of castings and metal parts.

Hubbell Metals Builds Warehouse

Hubbell Metals Inc., St. Louis, completed a new warehouse at 801 Atlantic Ave., North Kansas City, Mo., to replace its present Kansas City buildings. Carl D. Garfinkel is manager of the Kansas City branch office.

New Firm To Build Cylinders

Allis Hydraulic Products Inc. was organized in Milwaukee to design and build air and hydraulic cylinders. Main offices are located at 1721 E. Lake Bluff Blvd., Milwaukee, with manufacturing facilities at Waukesha, Wis. William W. Allis is president and general manager. G. A. Markuson, formerly president of Hydro-Line Mfg. Co., Rockford, Ill., is vice president and sales manager.

Eaton Mfg. Builds in Marion

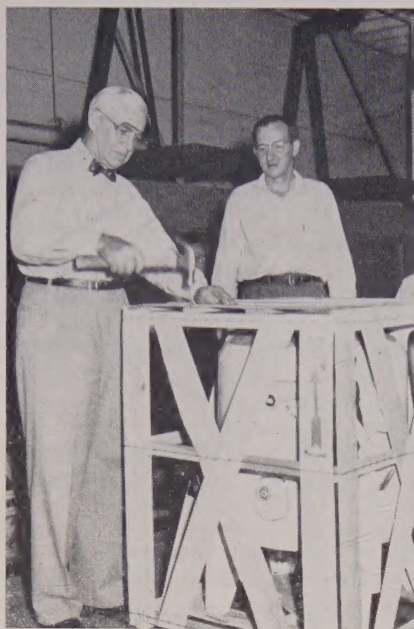
Eaton Mfg. Co., Cleveland, is constructing a plant on the outskirts of Marion, O., for manufacture of automotive parts and forgings. Cost of the 170,000-square-foot structure is estimated at \$8 million, including equipment.

Canadian Plant To Make Capacitors

Daly (Condensers) Ltd., Ealing, England, in association with a Canadian group, leased space at 140 Kendal Ave., Toronto, Ont., for production of electrolytic capacitors for radio, television and industrial use.

Carboloy Appoints Distributors

Carboloy Department, General Electric Co., Detroit, appointed as its distributors: Acme Saw & Supply, San Diego, Calif.; Squier, Schilling & Skiff Inc., Newark, N. J.



Back to the Old Job

When Whirlpool Corp., St. Joseph, Mich., transferred its conventional wringer washer assembly line to Clyde, O., Fred S. Upton, vice president and treasurer, celebrated the occasion by returning to the job he held 40 years ago. Here he crated the 4,123,726th and last conventional washer to be produced at the St. Joseph plant, which will make automatic washers.

Vocaline Gets Control of Bristol

Vocaline Co. of America, manufacturer of electronic devices, purchased controlling interest of Bristol Motor Co. Inc., both of Old Saybrook, Conn.

Penn Metal Opens Washington Office

Penn Metal Co. Inc., Boston, opened new offices at 1025 Connecticut Ave. N.W., Washington, under the management of Cecil R. Cooley.

Northrop Aircraft Buys Radioplane

Northrop Aircraft Inc., Hawthorne, Calif., acquired all assets of Radioplane Co., Van Nuys, Calif., manufacturer of radio controlled target airplanes. Radioplane will continue production of target planes, and research and development programs as a new division of Northrop. Backlog of orders for Radioplane totals \$18.8 million.

Tourek Completes Move to New Plant

J. J. Tourek Mfg. Co., Chicago, manufacturer of screw machine products, is operating its new factory at 1901 S. Kilbourn Ave., that city.

Kyle & Co. Expands Facilities

New warehousing and distributing facilities were completed at 500 Richards Blvd., Sacramento, Calif., by



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- special sizes
- special shapes
- flat
- concentric
- standard sizes

We fabricate from:

lead	fusible metals
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Truck Driver's Reward

Wilfred "Red" Richotte, an industrial truck driver for Veeder-Root Inc., a Hartford, Conn., manufacturer of counting devices, won the electric truck division of the Last Frontier Fork Truck rodeo conducted by the Connecticut Valley Materials Handling Society in New Haven, Conn. He received his trophy from Miss Joyce Yeske, recent winner of Miss Connecticut beauty title

Kyle & Co., distributors and fabricators of steel and other metals and metal products. Charles E. Durham is manager of the new operation.

Chase Brass Builds in Cleveland

Chase Brass & Copper Co., Waterbury, Conn., is building a \$600,000 store and office building at the corner of Chester avenue and East 40th street, Cleveland. Walter C. Gram is regional sales manager while the Cleveland district sales office is under the direction of A. E. Dillingham.

Bell Refrigerator Rebuilds Plant

Bell Refrigerator Co., Winnipeg, Man., opened its plant, replacing the old one which was destroyed by fire last November.

Rebuilders Group Suspends Work

Activities of American Rebuilders Association Inc., Washington, have been temporarily suspended because not enough members were willing to carry the association through the summer months. The association says that efforts towards establishment of standards on electrical equipment and machine tools may be resumed. Correspondence with regard to membership in ARA, or any other matter concerned with ARA, should

be addressed to Leonard Morey, Morey Machinery Co., 410 Broome St., New York; or to H. Q. Griffith, Belyea Co. Inc., 21-45 Howell St., Jersey City, N. J.

Barrett Opens Research Laboratory

A laboratory, specially designed to develop and test materials and processes used in the manufacture of plastics, rubber products, paints and varnishes, paper, laminates, insulating materials and a wide range of other products, was opened in Edgewater, N. J., by Barrett Division, Allied Chemical & Dye Corp., New York. The facility will be known as the Shadyside Applications Research Laboratory and will be in charge of D. A. Rankin, superintendent.

Motor Specialties Changes Name

Motor Specialties Corp., Detroit, changed its name to Beck Products Corp. Officers, directors and personnel remain unchanged.

Tocco Establishes New Branches

Tocco Division, Ohio Crankshaft Co., Cleveland, opened a West Coast office at 3349 Union Pacific Ave., Los Angeles, under management of Harlan A. Messner. Tocco's Chicago office was moved to larger quarters at 6600 S. Nashville Ave. and has a laboratory completely equipped for experimental work on industrial heating applications. L. C. Schweitzer continues as the Chicago district manager.

Bettinger Licensed by Trans Gel

Bettinger Corp., Waltham, Mass., manufacturer of porcelain enamel products, and Trans Gel Products Inc., Queens Village, N. Y., signed a three-year agreement giving Bettinger exclusive world-wide use of a new method of photographic decoration known as the Perma-Stat process. Bettinger's license is limited to the field of its use on vitreous enamel on metal, with the exception of bathroom and kitchen tile which has been licensed to others.

Corry-Jamestown Completes Plant

The new million dollar plant of Corry-Jamestown Mfg. Co., Corry, Pa., is completed and will be in full-scale operation later this year, says David A. Hillstrom, president. A disposal plant will be constructed at the factory for elimination of paint and chemical wastes.

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200 ft. to 300 ft. long
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Niles 42"-50" Driving Box Borer, Burnishers
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LeBlond #2½ Univ. Miller, 3 SCD.
Hall Planetary Style D Miller.
Gould & Eberhardt 96 H Hobber.
Heald #50 Internal Grinder.
Landis 10x18 Plain Grinder, late type.
Sellers 4T Tool Grinder, motor drive.
Sellers 6T Tool x Grinder, late type.
Cincinnati 16 x 96 Plain Cylindrical Grinder.
Landis 16 x 72 Plain Cylindrical Grinder.
Brown & Sharpe #12 Plain Grinder, revers-
ing mechanism.
Heald #70A Internal Grinder.
Heald #78 Centerless Internal & Cylindrical
Grinder, late type, complete.
Jones & Lamson 8 x 31 Thread Grinder.
Heald-72-A3 Plain Internal Grinder.
Lodge & Shipley 16" x 6' single pulley drive,
12 spindle speeds.
American 16" x 8", 3 SCD, 56" center dis-
tance, 1½" hole in spindle.
Blount Model B-3 Special Application Lath-
ing for Turning, 20" swing, 2½" hole in
spindle, 54" centers.
Lodge & Shipley 20 x 8, single pulley drive,
12 spindle speeds.
Bradford 20 x 18, 4 SCD, 12' center dis-
tance, Loose change.
American 36" x 33" center distance, 2½"
hole in spindle, first class.
LeBlond 21" x 10' bed, 3 SCD, 5½" centers.
Gould & Eberhardt 16" Back Geared Shaper.
Gould & Eberhardt 24" Back Geared Shaper.
Gould & Eberhardt 28" Shaper, gear box.
Smith & Mills 32" Shaper, gear box.
Fellows 725 Gear Shaper with Spur Guide.
Fellows 612 Spur Gear Shaper.
Brown & Sharpe 3-26 Gear Cutter.
Oliver Template Tool Bit Grinder.
Liberty 36" x 36" x 18" Double Housing
Planer 2 rail and 2 side heads.
Lodge & Shipley 16" x 126" centers G.H.
Lathe, Timken bearing, complete with tape
attachment, late type.
Cincinnati #2 Vertical Mill, single pulley
drive.
Niles 48" x 48" x 16" Double Housing Planer
4 heads, box table, DC reversible drive.
Niles 84" x 84" x 16" Double Housing Planer
4 heads, box table, DC reversible drive.
Landis 26" x 168" Plain Cylindrical Grinder.
American 30" x 14" G.H. Lathe, 12 speed.
LeBlond 25" x 10' 3 SCD Lathe, 4' centers.
Monarch 24" x 12' G.H. Lathe, complete with
22" 4 jaw chuck and taper attachment.
LeBlond 3H 3 SCD Plain Miller.

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Gondolas, Composite or All Steel, 50-Ton and 70-Ton

Hoppers, Covered, All-Steel, 70-Ton
Hoppers, Twin, All-Steel, 50-Ton, Cross Dump
Hoppers, All-Steel, 70-Ton, Cross Dump
Tank, 3,000-Gallon, High Pressure

EXTRA LONG FLAT CARS

40 & 50-Ton Capacity, Length 70' and 74'

STANDARD GAUGE AIR DUMP CARS

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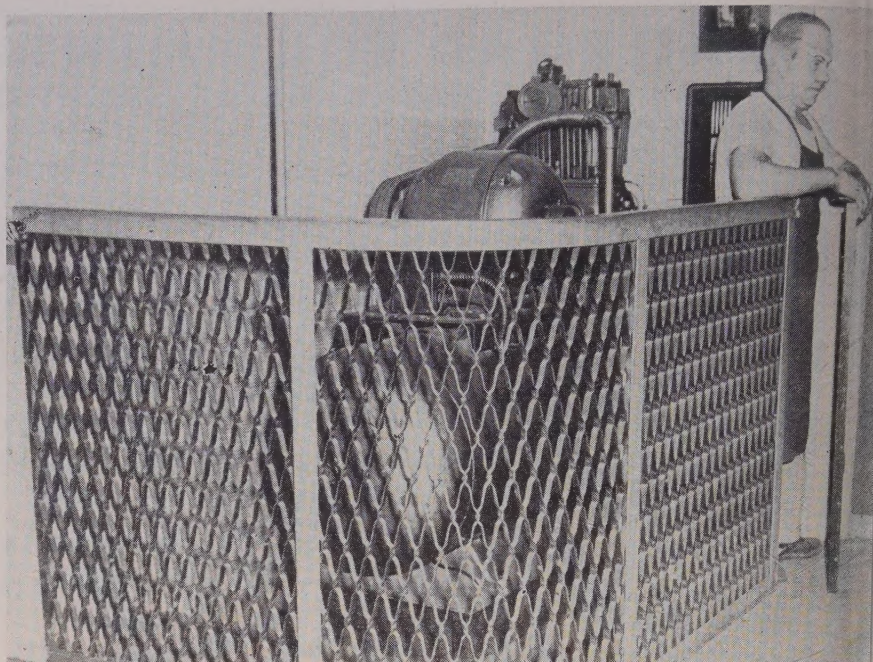
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To protect valuable machinery in spots where materials are constantly being moved by crane or truck, the Irving Subway Grating Co. installed steel grating in its Long Island City, N. Y., plant. Grating like that around the compressor above can take much heavier impact than conventional light machinery guards.

Willys Expanding Forge Shop

Willys-Overland Motors Inc., Toledo, O., is expanding its steel forge shop. Two giant forge hammers went into operation this month, producing airframe and engine components for jet planes. Prior to the expansion program, the plant contained 26 hammers, ranging from 2000 to 12,000 pounds capacity, enabling production of 102 million pounds of forgings annually. The expansion involves nine additional hammers, ranging from 5000 to 35,000 pounds capacity, which will add more than 100 million pounds to the yearly production potential. Two forge presses of 2500 and 4000 pounds capacity are being added to the battery of four presses ranging in capacity from 750 to 1500 tons. The shop also contains two 5-inch upsetters.

Bliss & Laughlin Moves Branch

Milwaukee district sales offices of Bliss & Laughlin Inc., Harvey, Ill., are located in new quarters at 1324 Wisconsin Ave.

Tube Turns Inc. Marks 25th Year

Tube Turns Inc., Louisville, is celebrating its 25th anniversary. The company has a branch plant in Los Angeles and branch offices in principal cities. In 1948, the company purchased Pennsylvania Forge Corp., Philadelphia, a manufacturer of forged steel flanges and established a subsidiary, Tube Turns of Canada

Ltd., in Chatham, Ont. George Boomer is president while John Seiler is executive vice president of the parent company.

Shenango-Penn Opens Pattern Shop

A pattern shop and locker room building to replace a fire-razed facility of Shenango-Penn Mold Co., Neville Island, Pa., was completed by Rust Engineering Co., Pittsburgh.

Motorola Buys Toronto Plant

Motorola Inc., Chicago, acquires a plant at 211 Geary Ave., Toronto, Ont., for manufacture of television and radio receivers.

Television Group Opens Headquarters

American Institute of Television Manufacturers established its national headquarters at 711 Fourteenth St. N.W., Washington. Office is under direction of W. F. Robichaud, former president of International Industrial Research Corp., Chicago.

Neosid Builds Toronto Plant

Neosid (Canada) Ltd., subsidiary of Neosid Ltd., England, is constructing a plant on Vansco road, Toronto, Ont., to make iron dust cores used extensively in radio, television and other electronic equipment.

Drill Jig Maker Appoints Agent

Esco Engineering Corp., Detroit, appointed M. C. Crawford Co., Los Angeles, as exclusive representative for its line of drill jigs for California and Arizona.